TM 9-4910-387-14-1

TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL, VOLUME I

FOR

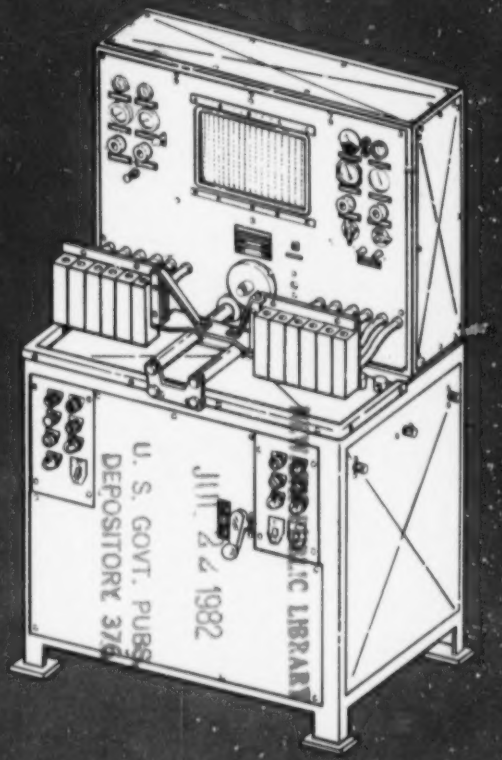
TESTER, FUEL INJECTOR PUMP:

SINGLE END DRIVE, 150 TO 3600 RPM
(4910-01-037-9417)

AND

ADAPTER KITS, FUEL INJECTOR:

AMERICAN BOSCH APE-6BB (4910-01-005-2850),
AMERICAN BOSCH PSB-6A AND PSB-6 (4910-01-005-2851),
AMERICAN BOSCH PSB-12BT (4910-01-005-2852),
SIMMONDS SU (4910-01-005-2853),
INTERNATIONAL HARVESTER 3200 (4910-01-006-3073),
AMERICAN BOSCH PSJ-6A (4910-01-006-3072),
CATERPILLAR (4910-01-005-2854),
ROOSA MASTER (4910-01-005-2855),
AND
CUMMINS (4910-00-763-7495)



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HEADQUARTERS, DEPARTMENT OF THE ARMY

MAY 1982

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WARNING

All personnel that operate and/or maintain the tester must be aware of the following precautions.

Electrical Shock Hazard

High voltage is used in the operation of this equipment. Death on contact may result if tester is not properly grounded. In case of electrical shock, turn off main power source at once. If power cannot be turned off at once, free the victim from contact with the tester as quickly as possible. Avoid direct contact with either the tester or the victim's body.

Noise Level Protection

The tester can generate noise which may damage hearing if proper protective measures are not followed. A safety officer should check the noise level while testing fuel injector pumps on the tester. If noise level exceeds 85 decibels, ear protection will be required.

Rotating and Moving Parts

Many rotating and moving parts are exposed when the protective panels are removed. Caution should be taken when working in these areas.

Shut off main power source when performing maintenance.

First Aid

For first aid information, refer to FM 21-11.

TECHNICAL MANUAL)
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No. 9-4910-387-14-1)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 24 May 1982

Operator, Organizational, Direct Support, and General Support Maintenance Manual FOR TESTER, FUEL INJECTOR PUMP: SINGLE END DRIVE, 150 TO 3600 RPM (4910-01-037-9417) AND ADAPTER KITS, FUEL INJECTOR: AMERICAN BOSCH APE-6BB (4910-01-005-2850), AMERICAN BOSCH PSB-6A AND PSB-6 (4910-01-005-2851), AMERICAN BOSCH PSB-12BT (4910-01-005-2852), SIMMONDS SU (4910-01-005-2853), INTERNATIONAL HARVESTER 3200 (4910-01-006-3073), AMERICAN BOSCH PSJ-6A (4910-01-006-3072), CATERPILLAR (4910-01-005-2854), ROOSA MASTER (4910-01-005-2855), AND CUMMINS (4910-00-763-7496)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual, direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished to you.

NOTE

Chapter 6, all appendixes, and the complete alphabetical index are contained in Volume II.

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*This manual supersedes TM 9-4910-387-12, 25 May 1962, and so much of TM 9-4910-387-14&P, 5 December 1974 as pertains to Maintenance.

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***ALPHABETICAL INDEX, VOL II ..... Index 1**

**This index contains entries for Volume I only.
***This index contains combined entries for Volumes I and II.

READER'S NOTES

HOW TO USE THIS MANUAL

GENERAL

In order to use this manual efficiently, there are several things to know.

a. The manual consists of two volumes. Volume I contains chapters 1 thru 5. Volume II contains chapter 6 and the appendixes. The Repair Parts and Special Tools List is a separate publication, TM 9-4910-387-24P.

b. Read the entire maintenance procedure before beginning the maintenance task.

c. References in the manual are to pages or to other publications.

INDEXES

This manual has several useful indexes to help the user quickly find the information needed:

a. **Front Cover Indexes.** Are tabbed indexes of key sections, paragraphs, or appendixes. Keyed to tabbed pages in the manual.

b. **Table of Contents.** Volume I lists in order all chapters, sections, appendixes, and alphabetical indexes contained in both volumes. Volume II lists chapter 6, sections, appendixes, and alphabetical index contained in that volume. Gives page references.

c. **Official Nomenclature, Names, and Designations.**

(1) **Nomenclature Cross-Reference List.** Gives an alphabetical list of common names and official nomenclature used in the manual.

(2) **List of Abbreviations.** Is an alphabetical list of uncommon abbreviations used in the manual.

d. **Chapter Indexes.** At the beginning of each chapter. Lists paragraphs in alphabetical order. Reference pages.

e. **Section Indexes.** At the beginning of maintenance procedures in chapters 3, 4, and 6. List paragraphs in alphabetical order. Reference pages.

f. **Alphabetical Indexes.** Located at the end of each volume. An extensive subject index for everything in both volumes is found in volume II. Volume I contains an extensive subject index for everything in that volume. Give page references.

MAINTENANCE PROCEDURES

Maintenance procedures found in chapters 4 and 6 are in two parts—summary procedures and detailed procedures. Procedures are in disassembly sequence as authorized in the maintenance allocation chart, appendix B.

a. **Summary Procedure.** Made up of two parts—initial setup and list of tasks. Used only when doing more than one task on a particular component. (For maintenance of an individual assembly, use the detailed procedure immediately following each summary procedure.)

(1) **Initial Setup.** Is a list of everything needed in order to do the maintenance task:

Tools and Special Tools—Lists tools required for the maintenance procedure.

Materials/Parts—Lists expendable materials and 100% replaceable parts. Each material or part is followed by a part number or appendix reference. If more than one part is needed, the quantity needed precedes the part number or reference.

References—Lists other publications or other detailed procedures in this manual containing necessary information.

Troubleshooting References—Lists malfunctions which can be corrected by following the maintenance procedure.

Equipment Conditions—Lists conditions to be met before starting the procedure.

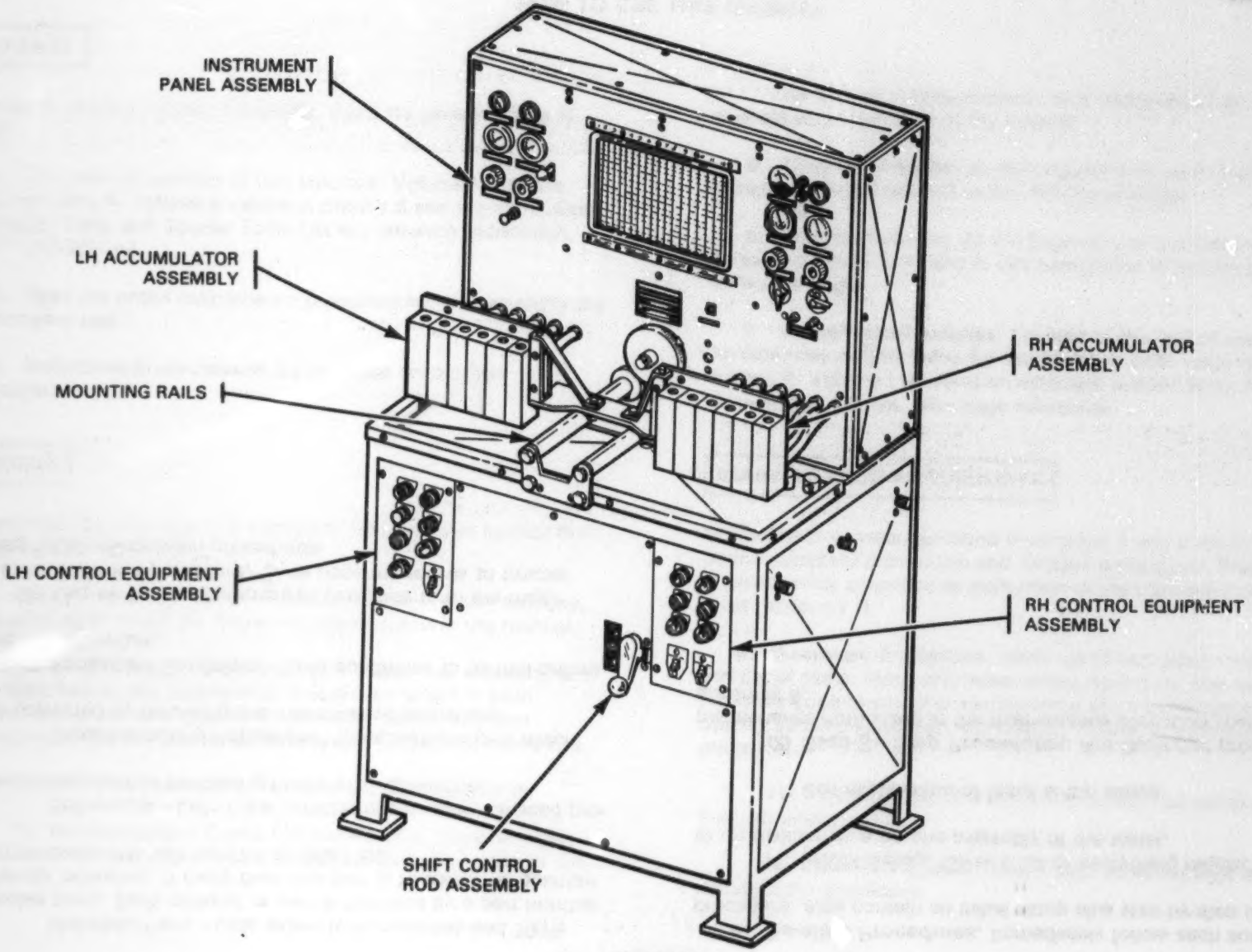
(2) List of Tasks. Summarizes in outline form the major tasks involved in the procedure. Gives page references to troubleshooting table and detailed procedures.

b. Detailed Procedures. Immediately follow each summary procedure. Also contain an initial setup plus step-by-step procedures.

(1) Initial Setup. Gives a list of everything needed in order to do maintenance on one assembly of the tester.

See explanation of initial setup above.

(2) Step-By-Step Procedures. Are illustrated procedures for maintenance authorized in the maintenance allocation chart, appendix B.


INSTRUMENT PANEL ASSEMBLY
LH ACCUMULATOR ASSEMBLY
MOUNTING RAILS
LH CONTROL EQUIPMENT ASSEMBLY
SHIFT CONTROL ROD ASSEMBLY
RH ACCUMULATOR ASSEMBLY
RH CONTROL EQUIPMENT ASSEMBLY

TESTER

CHAPTER 1
INTRODUCTION

CHAPTER INDEX

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Section I. GENERAL INFORMATION

1-1. SCOPE

a. Type of Manual: Operator, organizational, direct support, and general support maintenance.

b. Model Number and Equipment Name: Tester, fuel injector pump (4910-01-037-9417).

c. Purpose of Equipment: To simulate engine operating conditions for the complete pretesting, adjusting, and troubleshooting of diesel, multifuel, and gasoline fuel injector pumps.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

a. The tester, if subject to capture or abandonment in the combat zone, will be destroyed only when, in the judgment of the unit commander, such action is necessary in accordance with orders or policy of the Army Commander. When in the hands of Army maintenance personnel or in storage, destruction will be in accordance with FM 9-6 and the information below when applicable.

b. The information which follows is for guidance only. Certain procedures require the use of explosives and incendiary grenades which may not be authorized items for the using organization. The issue of these and related materials and the conditions under which the tester will be destroyed are command decisions according to the tactical situation. Destruction of essential parts followed by burning will usually be enough to make the materiel useless.

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE (cont)

Selection of the particular method of destruction requires imagination and resourcefulness in using the facilities at hand under the existing conditions. Time is critical. The most applicable means of destruction are as follows:

Mechanical	Requires axe, pick mattock, sledge, crowbar, or similar implement.
Burning	Requires gasoline, oil, incendiary grenades, or other flammables, or welding or cutting torch.
Demolition	Requires suitable explosives or ammunition.

c. If the tester is to be destroyed, the materiel must be so badly damaged that it cannot be restored to a usable condition in the combat zone either by repair or cannibalization. Adequate destruction requires that all parts essential to the operation of the materiel, including accessories, be destroyed or damaged beyond repair. However, when lack of time and personnel prevents destruction of all parts, priority is given to the destruction of those parts most difficult to replace. Equally important, the same parts must be destroyed on all like materiel so that the enemy cannot construct one complete unit from several damaged ones.

d. For destruction by mechanical means:

(1) Disconnect the tester from its source of electricity.

(2) Remove all metal panels from the tester.

(3) Using an axe, pick mattock, sledge, or other heavy implement, destroy the tester by smashing the main drive and auxiliary motors; vacuum, fuel, and lube pumps; mounting rails; and the controls and indicators.

(4) Destroy the electrical wiring by cutting into short lengths. Elapsed time: about 15 minutes.

e. For destruction by burning:

(1) Disconnect the tester from its source of electricity.

(2) Remove all metal panels from the tester.

(3) Using a welding or cutting torch, burn through the stator housing and into the armature of the main drive and auxiliary motors. Burn through the vacuum, lube, and fuel pumps. Burn the mounting rails and the controls and indicators.

(4) Destroy the electrical wiring by burning in places.

WARNING

When igniting gasoline, due consideration should be given to the highly flammable nature of gasoline and its vapor.

(5) In the absence of a welding or cutting torch, place piles of combustible on and about the tester. Pour gasoline or oil over the combustible and the materiel; ignite by means of an incendiary grenade fired from a safe distance, by a combustible train of suitable length, or other appropriate means. Take cover immediately. A hot fire is required to render the materiel useless. Elapsed time: about 15 minutes.

f. If destruction by demolition is directed, due consideration should be given to the observance of appropriate safety precautions. For complete details on the use of demolition materials, refer to FM 5-25.

g. **For destruction by demolition:**

(1) Disconnect the tester from its source of electricity.

(2) Remove all metal panels.

(3) Planning for simultaneous detonation, prepare and place four 1-lb (0.45-kg) demolition charges (using a 1-lb (0.45-kg) TNT block or equivalent per charge, together with the necessary detonating cord to make up each charge) as follows:

(a) Place the first charge in the RH control equipment assembly.

(b) Place the second charge in the LH control equipment assembly.

(c) Place the third charge in the upper frame assembly.

(d) Place the fourth charge in the lower frame assembly against the open end of the main drive motor.

(4) Connect the four charges for simultaneous detonation with detonating cord.

(5) Provide for dual priming to minimize the possibility of a misfire.

(6) Detonate the charges. The danger zone is approximately 250 yards (229 meters). Elapsed time: about 4 minutes.

1-4. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS

This listing includes the nomenclature cross-reference list and the list of abbreviations used in this manual.

a. **Nomenclature Cross-Reference List.**

Common Name	Official Nomenclature
Absorbent material	Oil and water absorbent material
Amber lens	Light lens
Auxiliary motor	1/2 Horsepower motor
Auxiliary motor switch	Motor starter switch with heater P-28
Bearing	Ball bearing
BULB TEMPERATURE gage	Thermometer
Burette	Graduate and valve assembly
Cap	Filler opening cap
Clamp	Tank clamp
Cleaning compound	Solvent cleaning compound
Clear lamp	Glow lamp
Clear lens	Light lens
Clevis	Rod end clevis
Clinch sleeve	Tube fitting clinch sleeve
Conduit hub	Electrical box connector
Coupling	Rigid shaft coupling
Cover	Fluid filter head
Cover	Plate cover
Cover	Waste tank cover
Cover assembly	Fuel tank cover assembly
Cover assembly	Lube tank cover assembly
Driven coupling	Rigid driven shaft coupling
Durnping lever	Bar
Element	Chemistone element
FAST switch	Push switch
Fitting	Hydraulic fitting

1-4. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS (cont)

a. Nomenclature Cross-Reference List. (cont)

Common Name	Official Nomenclature
Fitting	Lubrication fitting
500-1000-OFF switch	Push selector switch
Flexible conduit	Sealtite conduit
Float	Metering float
FORWARD-OFF-REVERSE switch	Push switch
Forward tachometer reversing relay	Midget relay
Frame	Upper and lower frame assembly
Front timing belt	Positive drive belt
Fuel	Calibrating oil
Fuel delivery line	Fuel delivery line assembly
FUEL HEAT switch	Motor starter with heater switch
Fuel level sight gage	Sight indicator
FUEL TEMPERATURE gage	Thermometer
Gasket cushion	Graduate discharge cushion
Grease	Ball and roller bearing grease
Grommet	Nonmetallic rubber grommet
Holding relay	Midget relay
Hose	Nonmetallic hose assembly
Hose assembly	Fuel hose assembly
Hose assembly	Nonmetallic hose assembly
Key	Machine key
Key	Woodruff key
Latching relay	Electro Potter & Brunfield relay
Legend plate	Indicator legend plate
LUBE HEAT switch	Motor starter with heater switch
Lube oil	SAE 30 engine lubricating oil
Lube oil filter	Lube oil fluid pressure filter
Lube oil level sight gage	Oil level sight indicator
Lube pump	Rotary pump
Main drive motor	Varidrive motor
Male connector plug	Plug connector
Male hose fitting	Straight pipe adapter
Manifold bulb assembly	Manifold bulb chamber assembly
Manifold chamber	Manifold bulb chamber
Microswitch	Sensitive switch
Midget relay	Reverse tachometer reversing relay
Mounting rail	Pump mounting rail
Nameplate	Instrument panel nameplate
Nameplate	Shifter nameplate
Nipple	Pipe nipple
Nozzle	Fuel nozzle
Nozzle adapter assembly	Fuel assembly adaptor
Nozzle adapter wrench	Open end wrench
Nozzle and holder set	Nozzle holder assembly
Oil	SAE 10 engine lubricating oil
Oil	SAE 20 engine lubricating oil
Outer disk	Clutch outer disk
Pawl fastener	Cylinder fastener
Plug	Inlet plug
Plug	Pipe plug
Plug cock	5-way plug cock
Pressure gage	Dial pressure gage
Primary fuel filter	Primary fuel fluid pressure filter
Rag	Wiping rag
Rear timing belt	Positive drive belt
Rod	Headless shoulder pin
Secondary fuel filter	Secondary fuel fluid pressure filter
Shaft	Shouldered shaft
Shaft pillow block	Ball bearing unit
Shutoff cock	Screw stem shutoff cock
Shutoff solenoid cable	Shutoff solenoid

Common Name	Official Nomenclature
SLOW switch	Push switch
Spacer	Tray support spacer
START COUNT switch	Push switch
START switch	Push switch
Starter	Motor starter
Stem	Regulator stem
STOP switch	Push extended switch
TACHOMETER	Electrical indicator
Tank	Fuel tank
Tank	Lube tank
Tank	Waste tank
Tape	Electrical insulation tape
Tape	Pressure sensitive tape
Terminal lug	Lug terminal
Tester	Fuel injector pump tester
Thermostat	Thermostatic switch
Thermostat	Thermoswitch
Torque adapter	Torque assembly
24-VDC switch	Rotary switch
Vacuum pump	Rotary vacuum pump
Valve	Shutoff cock
Wire	Single conductor copper stranded electrical wire
Wire cable	Portable cord

b. List of Abbreviations.

Abbreviation	Definition
BR	Ball and roller bearing grease
LH	Left hand
MANF.	Manifold
PRESS.	Pressure
RH	Right hand
TNT	Trinitrotoluene
VDC	Direct-current volts

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

EIR's can and must be submitted by anyone who is aware of an unsatisfactory condition with the equipment design or use. It is not necessary to show a new design or list a better way to perform a procedure, just simply tell why the design is unfavorable or why a procedure is difficult. EIR's may be submitted on SF 368 (Quality Deficiency Report). Mail directly to: Commander, US Army Armament Materiel Readiness Command, Attn: DRSAR-MA-ILS, Rock Island, IL 61299. A reply will be furnished to you.

1-6. HAND RECEIPT

Hand receipts for Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL) items are published in a Hand Receipt manual, TM 9-4910-387-14-HR. This manual is published to aid in property accountability and is available through: Commander, US Army Adjutant General Publication Center, ATTN: AGDL-OD, 1655 Woodson Road, St. Louis, MO 63114.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

CHARACTERISTICS OF TESTER

- **HOUSING.** A welded steel angle frame covered by removable panels for easy inspection and maintenance.
- **VACUUM, FUEL, AND LUBE PUMPS.** Driven by a 1/2-hp, single-phase auxiliary motor with a speed of 1725 rpm. Furnish vacuum, heated fuel, and heated lubricating oil to the fuel injector pump under test.
- **MAIN DRIVE MOTOR.** A 10-hp, 3-phase constant speed motor.
- **REMOTE CONTROL MOTOR.** Coupled to the main drive motor. Has two speed ranges: a low speed range of 150 to 1200 rpm and a high speed range of 450 to 3600 rpm. A shift control rod assembly is provided for shifting from low to high range.
- **CONTROLS.** Located on front panel. Consisting of various pushbuttons, switches, and indicator lights.
- **INSTRUMENTS AND GAGES.** Located on instrument panel assembly. Consisting of pressure and temperature gages, TACHOMETER, and various selector valves and regulators. Twelve burettes indicate the fuel delivery of fuel injector pumps under test.
- **DIRECT CURRENT ELECTRICAL SYSTEM.** A step down transformer is used to reduce the ac voltage to the selenium rectifier which converts it to dc voltage. The dc voltage is used to check electrical solenoids found on some fuel injector pumps.

CAPABILITIES AND FEATURES

The tester, with its accessories used with adapter kits procured separately, simulates engine operating conditions for the following fuel injector pumps:

- American Bosch APE-6BB
- American Bosch PSB-6A
- American Bosch PSB-6
- American Bosch PSB-12BT
- Simmonds SU
- International Harvester 3200
- American Bosch PSJ-6A
- Caterpillar
- Roosa Master
- Cummins

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

a. Major Components. Refer to the following text and illustrations for location and description of major components. Side and rear panels must be removed in order to view certain components.

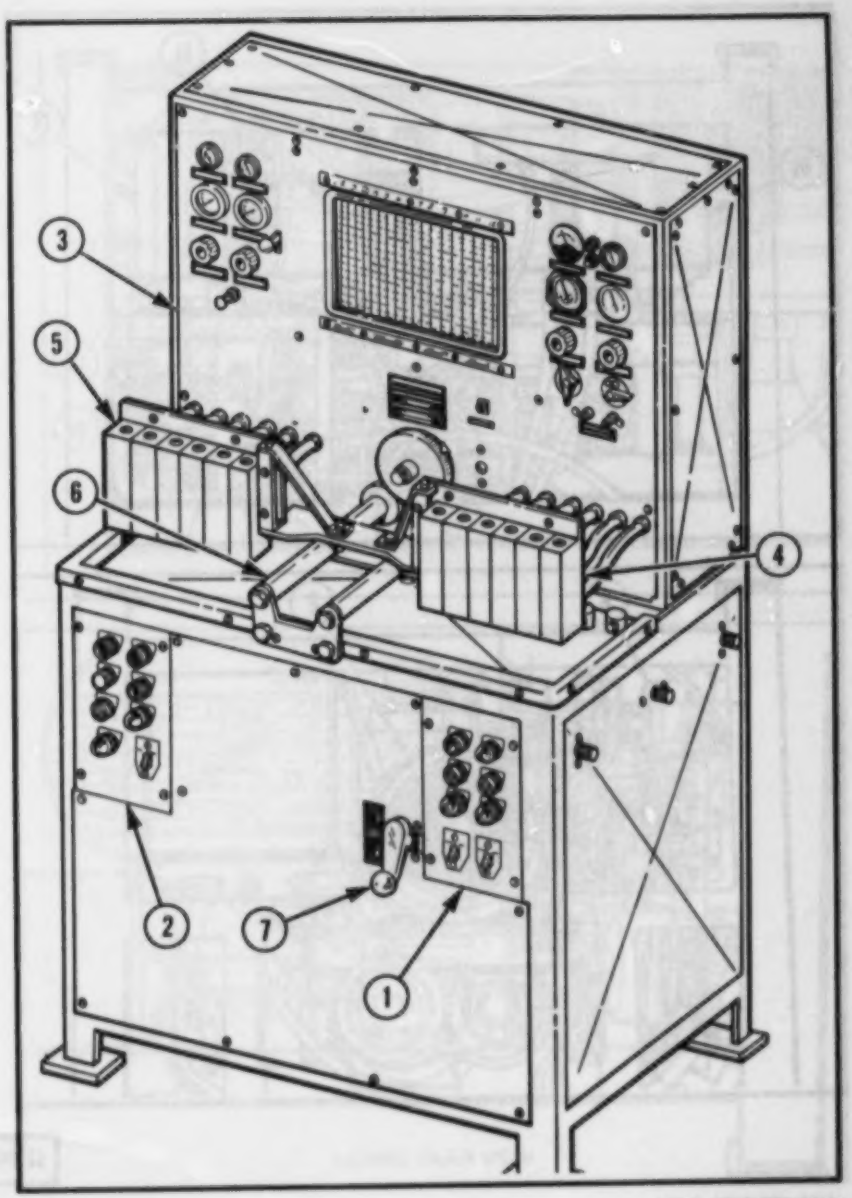
(1) RH AND LH CONTROL EQUIPMENT ASSEMBLIES (1 AND 2). Consists of various pushbuttons, switches, and indicator lights needed to operate the tester.

(2) INSTRUMENT PANEL ASSEMBLY (3). Consists of pressure and temperature gages, TACHOMETER, and various selector valves and regulators; and houses a graduate rack assembly. Monitors and controls the various functions of a fuel injector pump under test.

(3) RH AND LH ACCUMULATOR ASSEMBLIES (4 AND 5). Accumulates fuel pumped by fuel injector pump under test and transmits it to burettes in graduate rack assembly.

(4) MOUNTING RAILS (6). Used with an adapter bracket to secure a fuel injector pump to the tester.

(5) SHIFT CONTROL ROD ASSEMBLY (7). Shifts the main drive motor from the low speed range to the high speed range.



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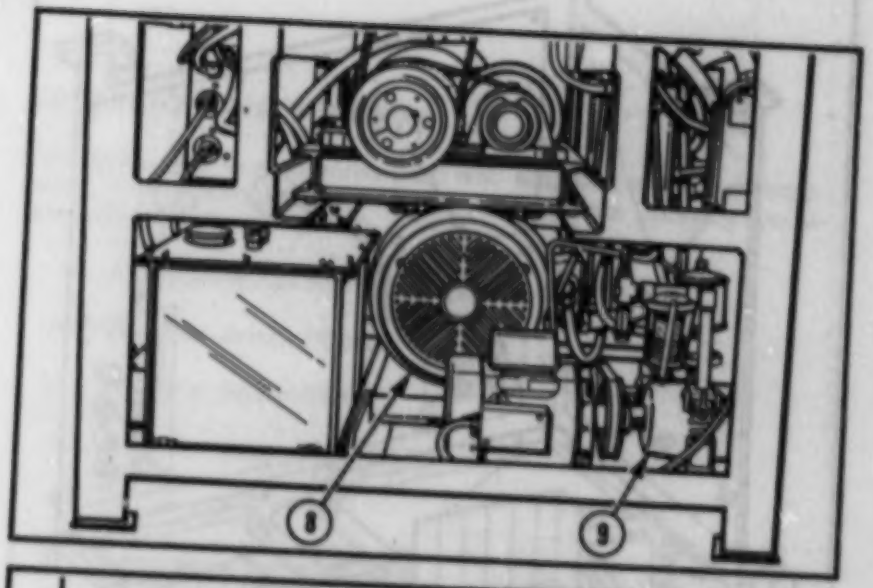
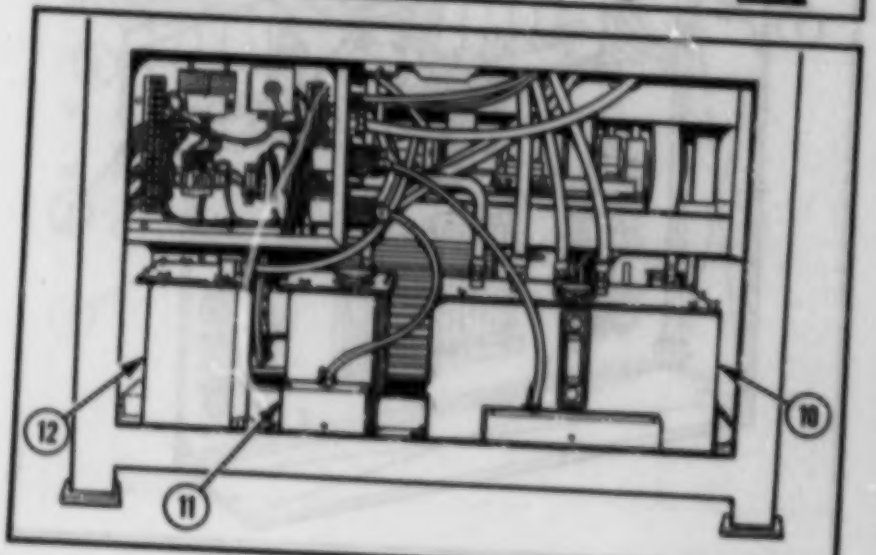
1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (cont)

(6) **DRIVE UNIT ASSEMBLY (8).** Provides and transmits rotary power to the various components requiring power by means of the pulley and timing belt drives.

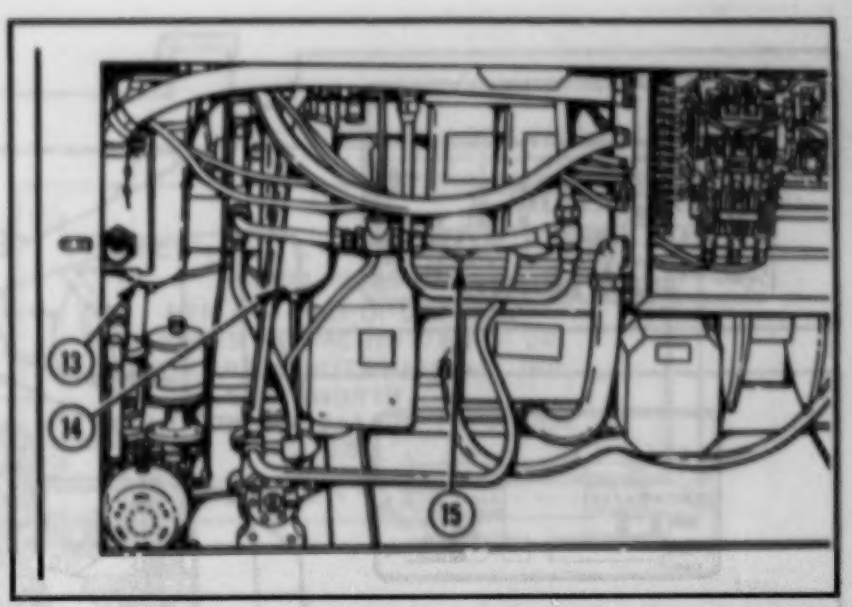
(7) **AUXILIARY MOTOR AND PUMP ASSEMBLY (9).** Consists of a 1/2-hp motor, vacuum pump, fuel pump, and lube oil pump. The auxiliary motor supplies the rotational power to drive all three pumps.

(8) **FUEL TANK ASSEMBLY (10), LUBE OIL TANK ASSEMBLY (11), AND WASTE TANK ASSEMBLY (12).** Act as reservoirs for their respective fluids.

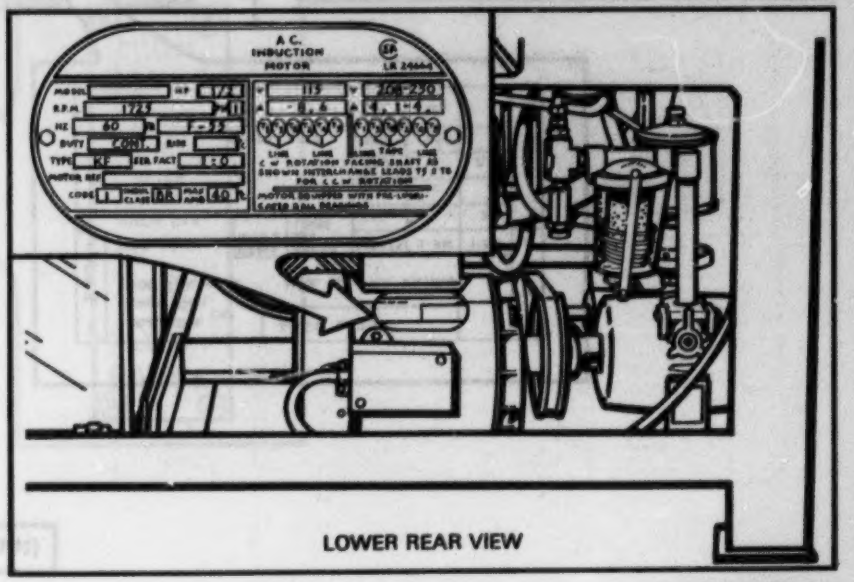




(9) **LUBE OIL FILTER (13), PRIMARY FUEL FILTER (14), AND SECONDARY FUEL FILTER (15).** Clean all the lube oil and fuel being circulated in the tester.



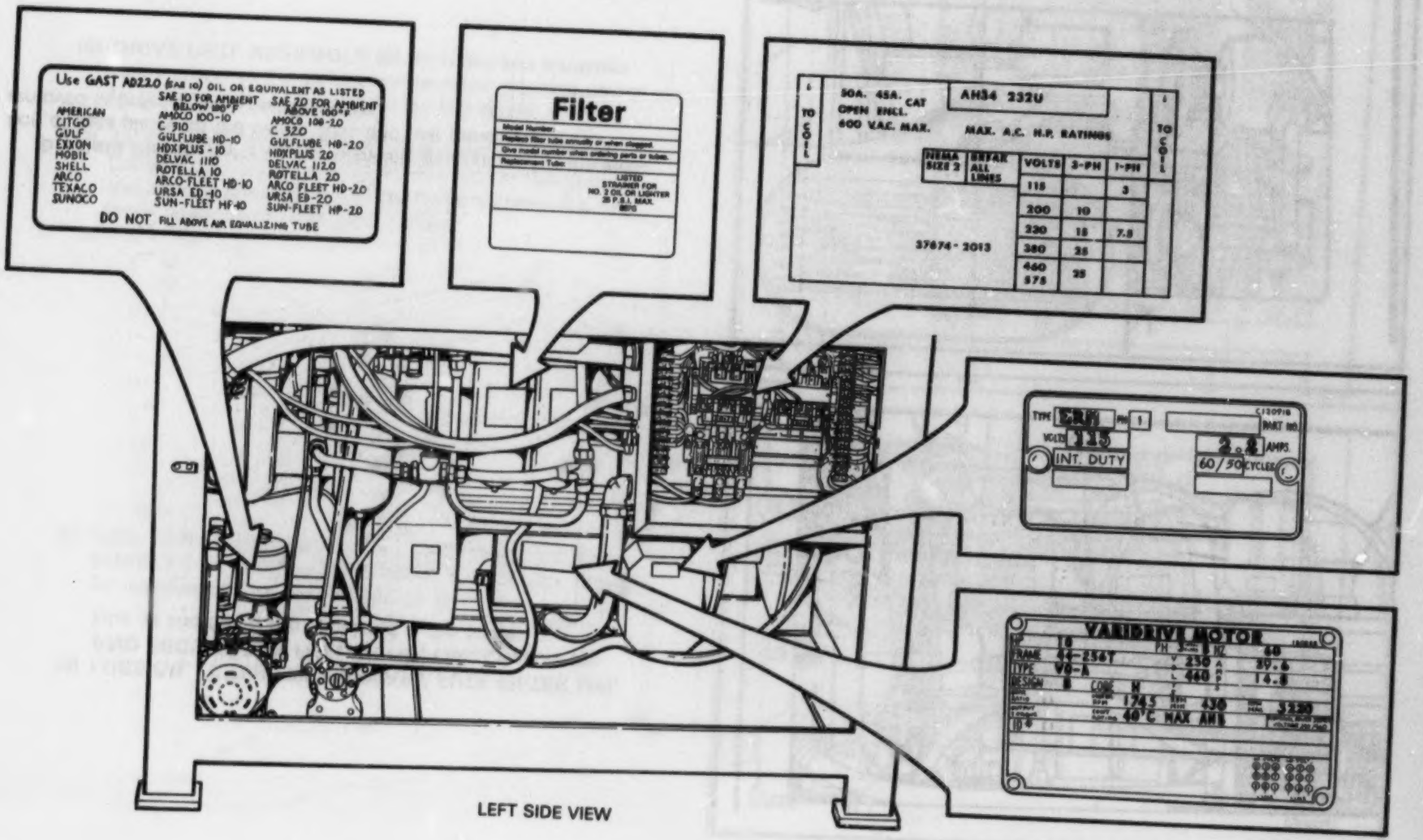
b. Data Plates. Refer to the following illustrations for the location of data plates on the tester. Side and rear panels must be removed in order to view certain plates.

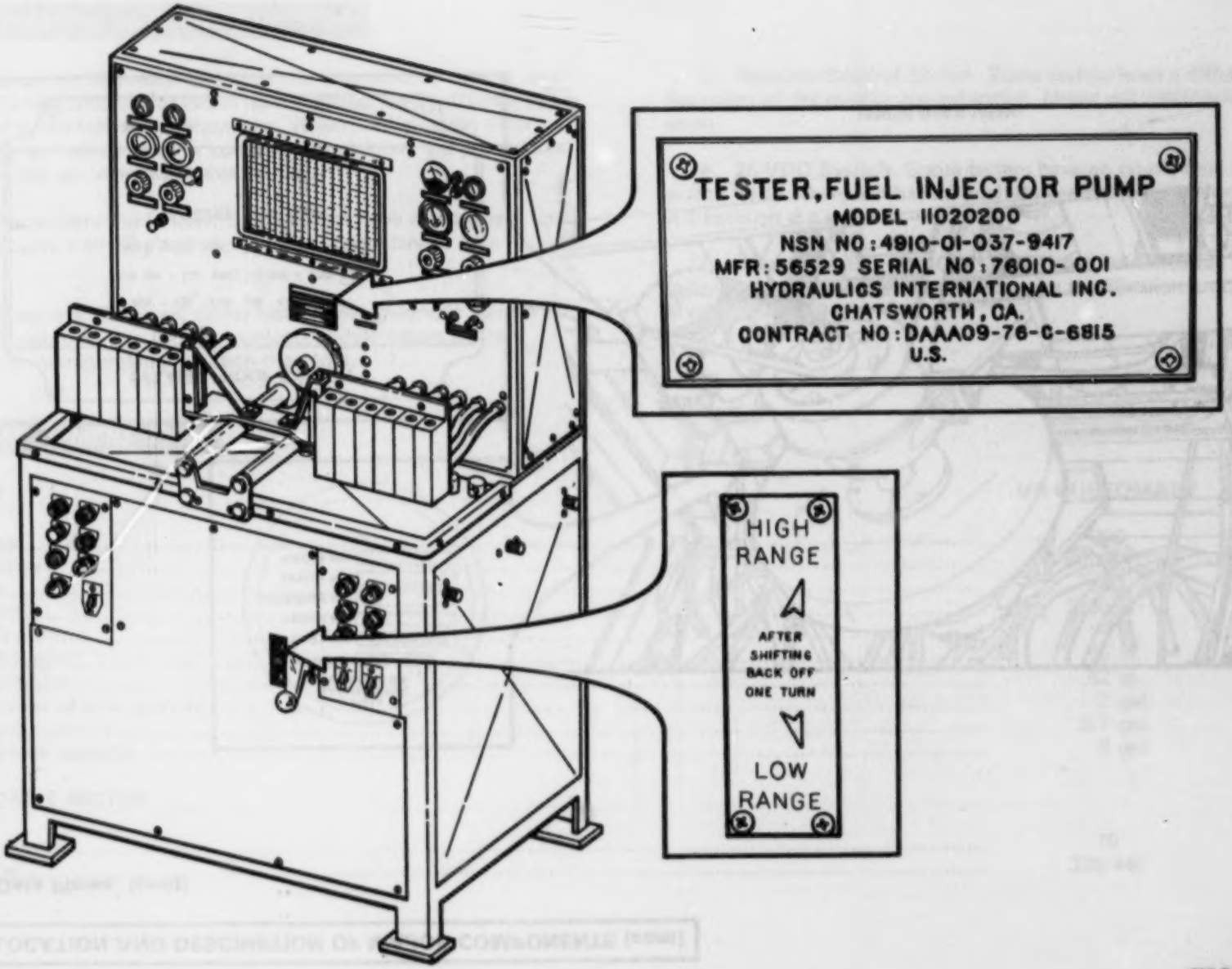


LOWER REAR VIEW

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (cont)

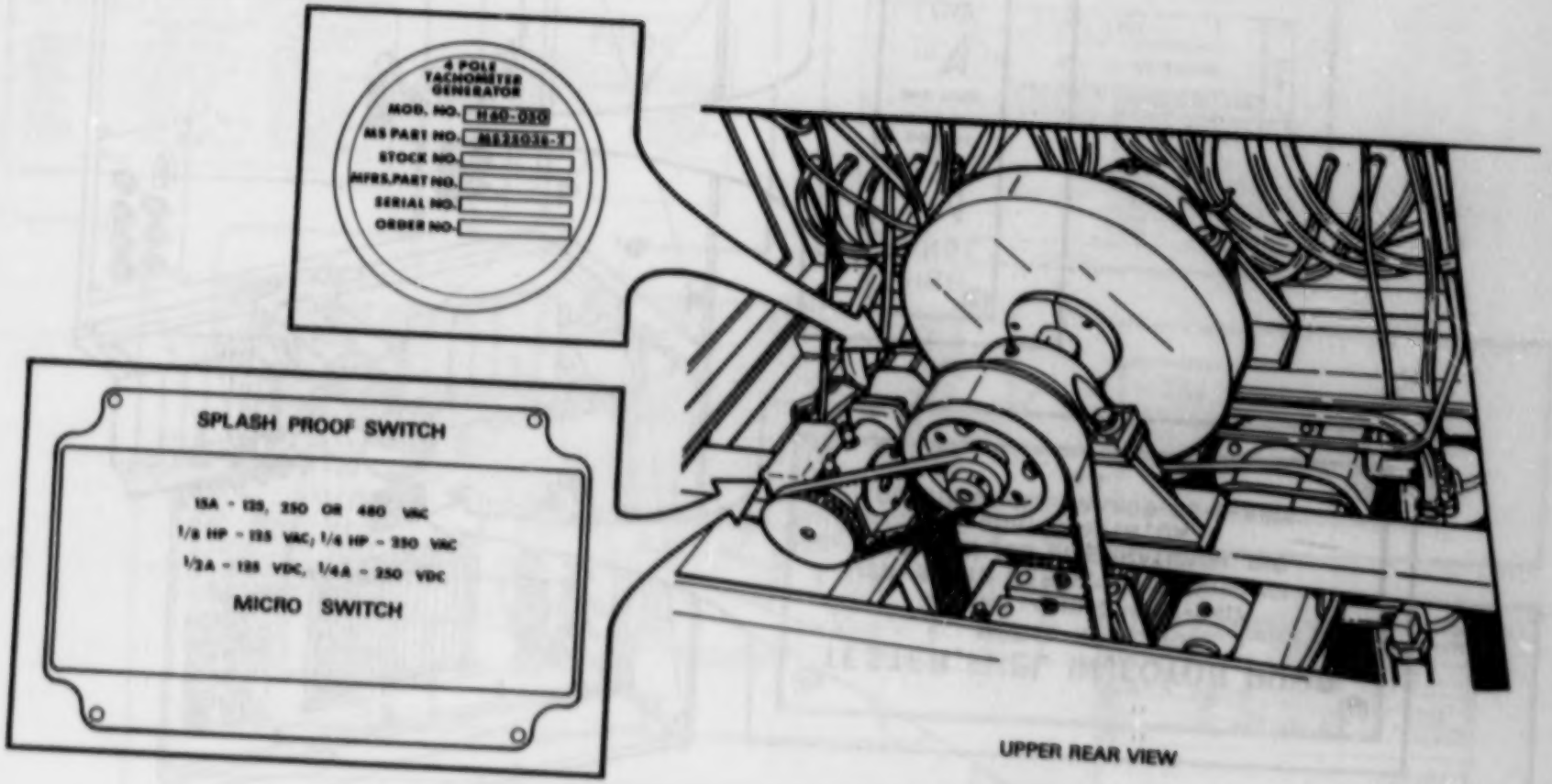
b. Data Plates. (cont)




TESTER, FUEL INJECTOR PUMP
MODEL 11020200
NSN NO: 4910-01-037-9417
MFR: 56529 SERIAL NO: 76010-001
HYDRAULICS INTERNATIONAL INC.
CHATSWORTH, CA.
CONTRACT NO: DAAA09-76-C-6815
U.S.
HIGH RANGE
AFTER SHIFTING BACK OFF ONE TURN
LOW RANGE

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (cont)

b. Data Plates. (cont)



UPPER REAR VIEW

1-9. DIFFERENCES BETWEEN MODELS

a. General. The tester has been manufactured by several companies. Configuration of different testers varies. Major differences are explained in the following paragraphs. When configuration differences change maintenance or operating procedures, the procedures for all models are included in this manual.

b. Secondary Fuel Filter. Some testers have a secondary fuel filter with only a single element. All other testers have a dual element.

c. Magnetic Starters. Some testers have magnetic starters which contain only two thermo overloads, while others contain three. Both configurations function the same.

d. Remote Control Motor. Some testers have a different configuration of the remote control motor. Motor will still function the same.

e. 24-VDC Switch. Some testers have an on-off type 24-VDC switch while others will have a push-button type. Switch or button will function the same.

f. Tester. Tester (4910-00-817-7431) can be converted into tester (4910-01-037-9417) by following the modification procedures in MWO 9-4910-387-40-1.

1-10. EQUIPMENT DATA

TESTER	US CUSTOMARY	METRIC
Voltage	220	
Frequency	50/60 Hz	
Phase	3	
Weight	2100 lb	952.56 kg
Overall width	44 in.	111.76 cm
Overall height	66 in.	167.64 cm
Overall length	52 in.	132.08 cm
Lubrication oil tank capacity	2 gal.	7.57 l
Fuel tank capacity	9.7 gal.	36.71 l
Waste tank capacity	3 gal.	11.36 l
MAIN DRIVE MOTOR		
Horsepower	10	
Voltage	220/440	

1-10. EQUIPMENT DATA (cont)

MAIN DRIVE MOTOR (cont)

Frequency	50/60 Hz
Phase	3
Speed	1800 rpm

AUXILIARY MOTOR

Horsepower	1/2
Voltage	220
Frequency	50/60 Hz
Phase	single
Speed	1725 rpm

REMOTE CONTROL MOTOR

Voltage	115
Frequency	50/60 Hz
Phase	single
Speed	1725 rpm
Frame number	256U
Current	1.8 amp

CHAPTER 2
OPERATING INSTRUCTIONS

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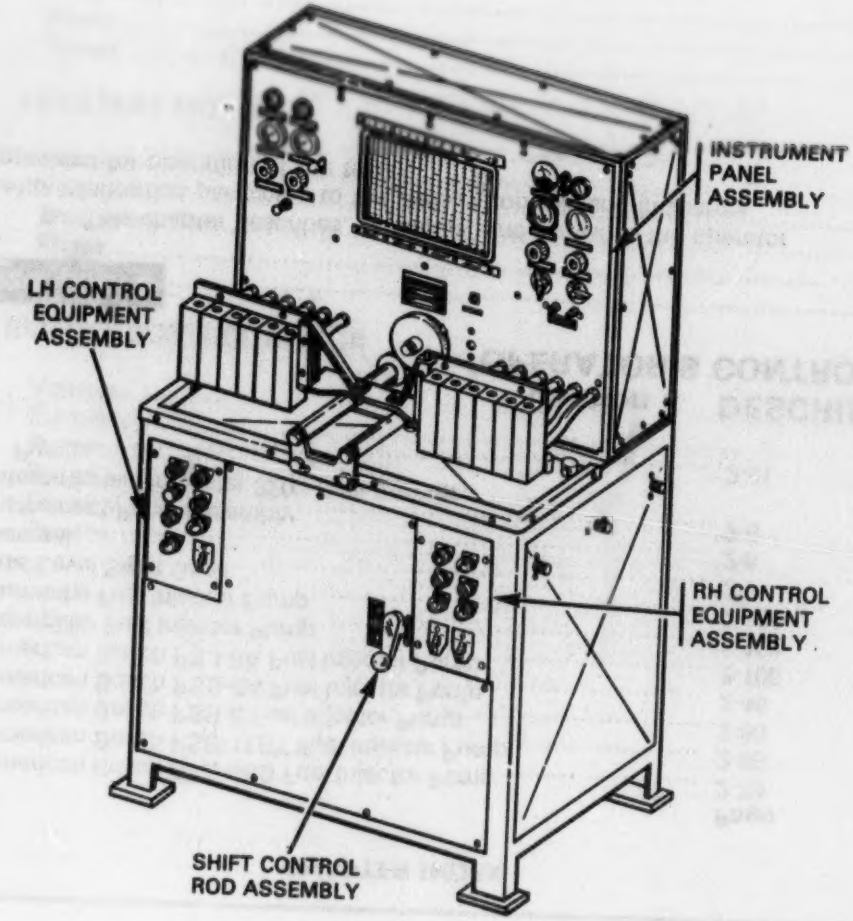
Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

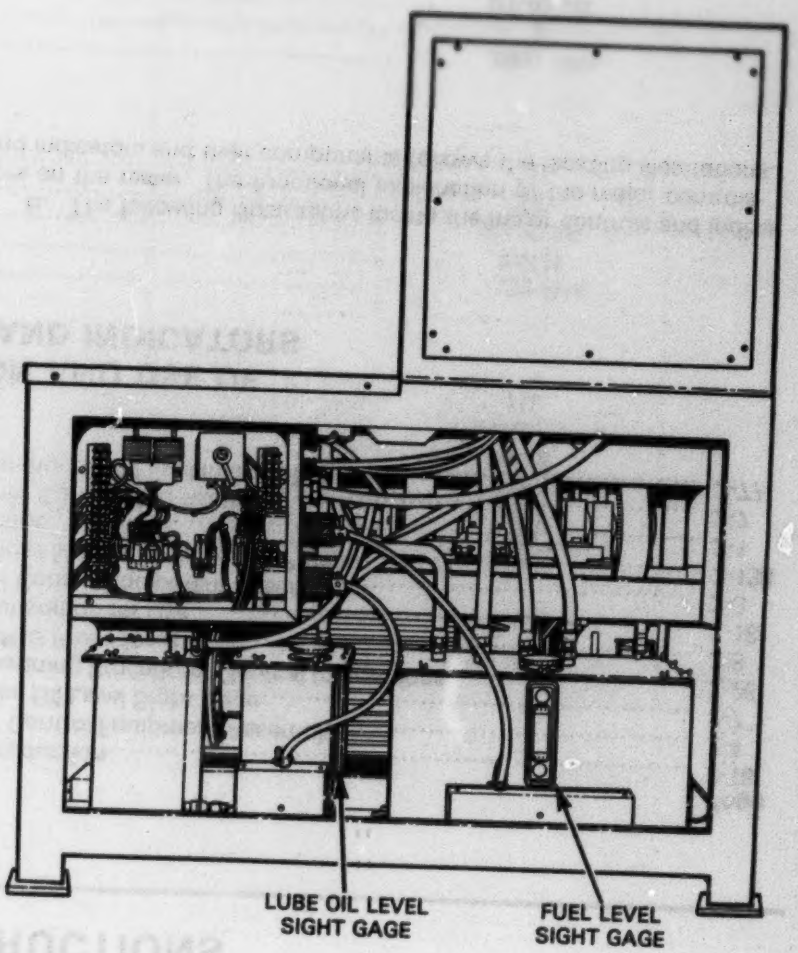
2-1. SCOPE

a. This chapter describes, illustrates, and furnishes the operator with information pertaining to the various controls and indicators provided for operation of the tester.

b. The following illustrations locate the major controls and indicators on the tester. The functional explanation of the major controls and indicators and their components follows the locating illustrations.

2-1. SCOPE (cont)





2-2. RH CONTROL EQUIPMENT ASSEMBLY

a. LUBE HEAT Switch. The LUBE HEAT switch (1) turns the thermostatically controlled lube heater on and off.

b. LUBE HEAT Light. The LUBE HEAT light (2) indicates whether the lube heater is on or off.

c. 500-1000-OFF Count Switch. The 500-1000-OFF count switch (3) has three positions: 500, 1000, and OFF. With a fuel injector pump under test, this switch is used to select the number of revolutions the shouldered shaft of the tester is running. The count starts when the START COUNT button (4) is pushed and held in momentarily. The count stops when the shouldered shaft has turned the selected number of revolutions, or when the 500-1000-OFF count switch (3) is turned to OFF.

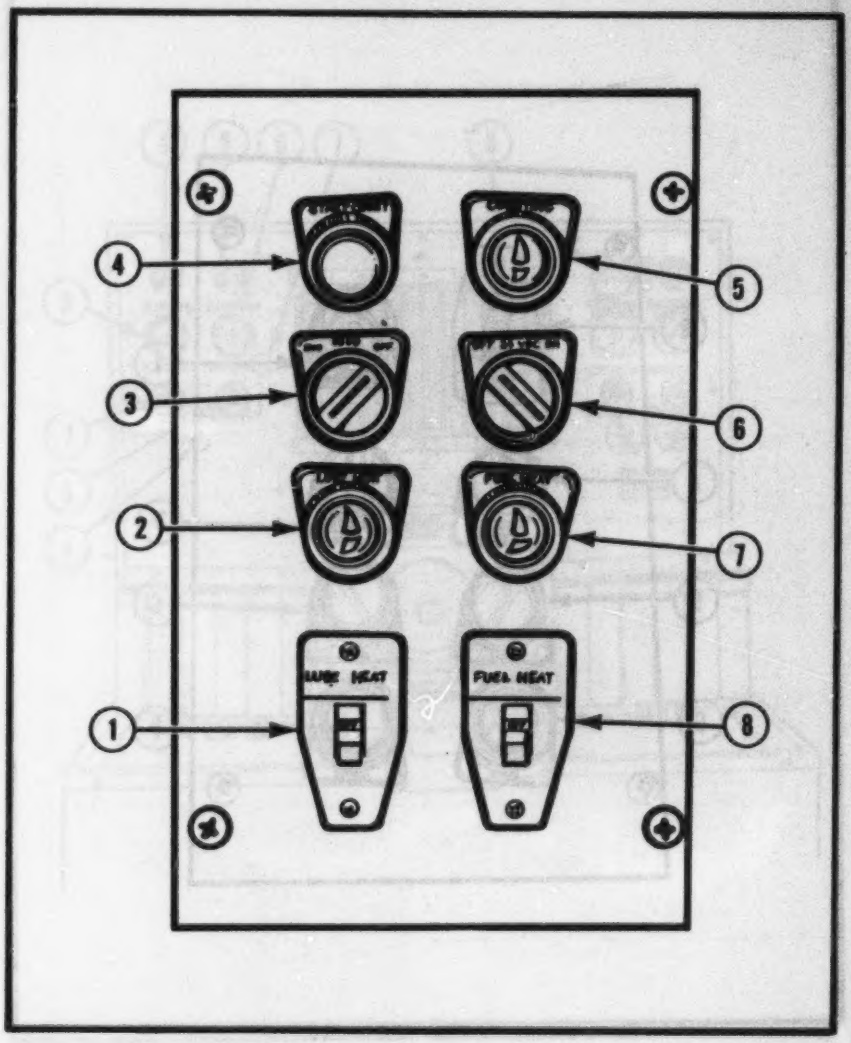
d. START COUNT Button. The START COUNT button (4) activates the counter circuit.

e. COUNTING Light. The COUNTING light (5) lights up when the counting circuit is energized.

f. 24-VDC Switch. The 24-VDC switch (6) applies voltage to the 24 VOLTS DC outlet assembly.

g. FUEL HEAT Light. The FUEL HEAT light (7) indicates whether the thermostatically controlled fuel heater is on or off.

h. FUEL HEAT Switch. The FUEL HEAT switch (8) turns the fuel heater on and off.



2-3. LH CONTROL EQUIPMENT ASSEMBLY

a. MANIFOLD HEAT Light. The MANIFOLD HEAT light (1) indicates whether the manifold heater is off or on.

b. FORWARD-OFF-REVERSE Switch. The FORWARD-OFF-REVERSE switch (2) reverses the direction of the main drive motor.

c. STOP Button. The STOP button (3) stops the main drive motor.

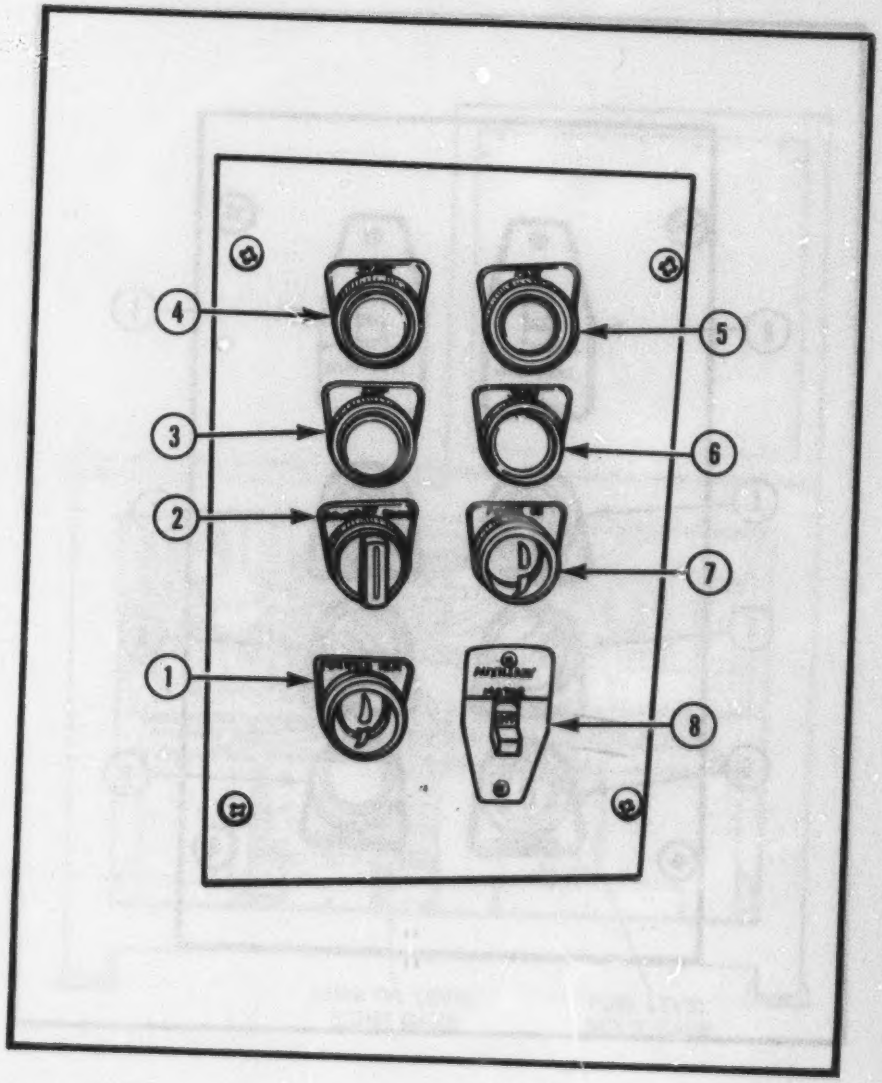
d. START Button. The START button (4) starts the main drive motor.

e. FAST Button. The FAST button (5) increases the rpm of the main drive motor.

f. SLOW Button. The SLOW button (6) decreases the speed of the main drive motor.

g. POWER ON Light. The POWER ON light (7) indicates that 220-v power is available to the tester.

h. AUXILIARY MOTOR Switch. The AUXILIARY MOTOR switch (8) is the on-off switch for the auxiliary motor which runs the fuel, lubricating, and vacuum pumps.



2-4. INSTRUMENT PANEL ASSEMBLY

a. Engine Primer Assembly. The engine primer assembly (1) is used to provide fuel to external equipment.

b. FUEL REGULATOR. The FUEL REGULATOR (2) regulates the pressure of the fuel being delivered to the fuel injector pump under test.

c. FUEL PRESSURE Gage. The FUEL PRESSURE gage (3) indicates the pressure of the fuel going to the fuel injector pump under test.

d. FUEL TEMPERATURE Gage. The FUEL TEMPERATURE gage (4) indicates the temperature of the heated fuel.

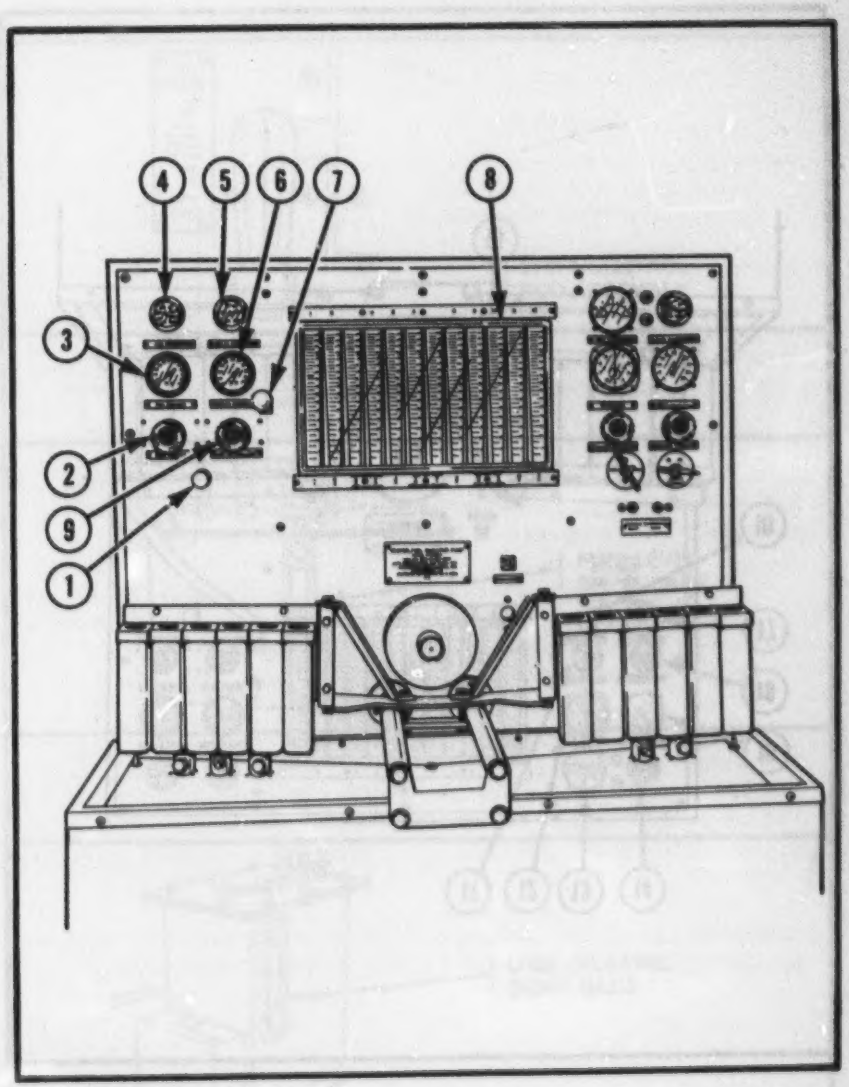
e. LUBE OIL TEMPERATURE Gage. The LUBE OIL TEMPERATURE gage (5) indicates the temperature of the heated oil.

f. LUBE OIL PRESSURE Gage. The LUBE OIL PRESSURE gage (6) indicates the pressure of the oil going to the fuel injector pump under test.

g. Dumping Lever. The dumping lever (7) is used to control the filling and emptying of the burettes (8).

h. LUBE OIL REGULATOR. The LUBE OIL REGULATOR (9) regulates the pressure of the oil being delivered to the fuel injector pump under test.

i. Burette. The burettes (8) show the fuel being delivered from the fuel injector pump under test.



TM 9-4910-387-14-1

2-4. INSTRUMENT PANEL ASSEMBLY (cont)

j. VACUUM-PRESS. Selector Valve. The VACUUM-PRESS. selector valve (10) is used to select either pressure or vacuum.

k. VACUUM REGULATOR. The VACUUM REGULATOR (11) is used to regulate the vacuum.

l. TACHOMETER. The TACHOMETER (12) indicates the rpms of the main drive motor.

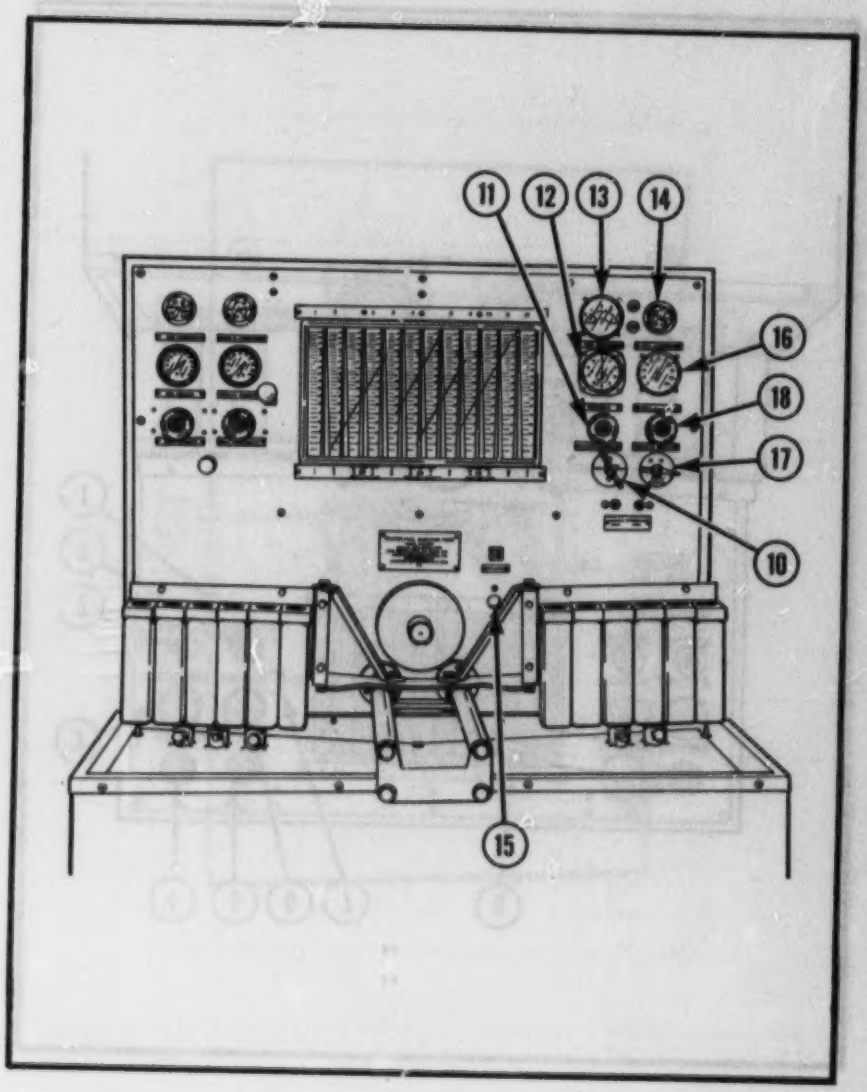
m. PUMP TEMPERATURE Gage. The PUMP TEMPERATURE gage (13) is used with the thermocouple leads to check the temperature of the fuel injector pump under test.

n. BULB TEMPERATURE Gage. The BULB TEMPERATURE gage (14) shows the temperature generated by the manifold bulb assembly (15).

o. MANIFOLD VACUUM PRESSURE Gage. The MANIFOLD VACUUM PRESSURE gage (16) registers either vacuum or pressure depending upon which way the MANF. PRESS.-CAPSULE PRESSURE selector valve (17) is turned.

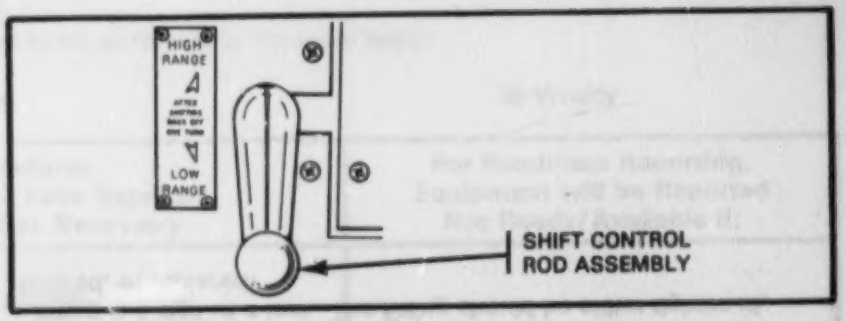
p. PRESSURE REGULATOR. The PRESSURE REGULATOR (18) is used to regulate the pressure.

q. MANF. PRESS.-CAPSULE PRESSURE Selector Valve. When testing fuel injector pumps used on super-charged engines, the MANF. PRESS.-CAPSULE PRESSURE selector valve (17) is used to select which type of pressure, either manifold or capsule, the MANIFOLD VACUUM PRESSURE gage (16) will show.



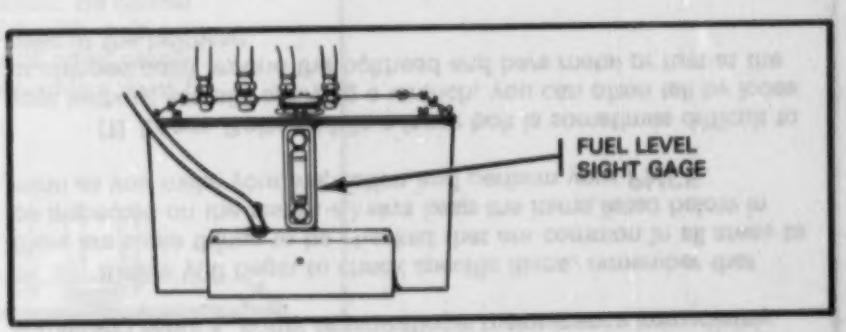
2-5. SHIFT CONTROL ROD ASSEMBLY

The shift control rod assembly is used to select the low range (150-1200 rpm) or the high range (450-3600 rpm) of main drive motor.



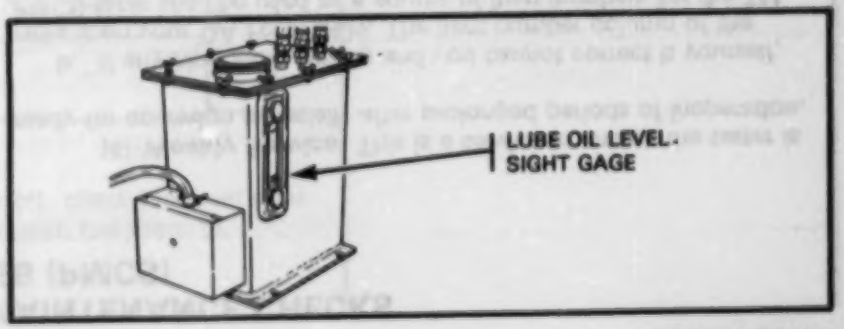
2-6. FUEL LEVEL SIGHT GAGE

The fuel level sight gage indicates the level of fuel in tank.



2-7. LUBE OIL LEVEL SIGHT GAGE

The lube oil level sight gage indicates the level of lube oil in tank.



Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-8. GENERAL

a. Before you operate. Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) PMCS.

b. While you operate. Always keep in mind the CAUTIONS and WARNINGS. Perform your during (D) PMCS.

c. After you operate. Be sure to perform your after (A) PMCS.

d. If your equipment fails to operate. Troubleshoot with proper equipment. Report any deficiencies using the proper forms, see TM 38-750.

2-9. PMCS PROCEDURES

a. The PMCS table (p 2-9) lists the required checks to be performed by personnel who operate the tester. The procedures are divided as follows:

(1) Before operation service. This is a brief service to ensure the tester is ready for operation.

(2) During operation service. This service consists of detecting unsatisfactory performance while operating the tester. The operator should be alert for unusual noise, odors, or any other malfunctions on any part of the tester.

(3) After operation service. This is a service designed to correct, where possible, all operating deficiencies so the tester will be ready to operate when required.

(4) Weekly Service. This is a service to ensure the tester is ready for operation especially after prolonged periods of inoperation.

b. If anything looks wrong and you cannot correct it yourself, write it on your DA Form 2404. The item number column of the PMCS table shall be used as a source of item numbers for the TM Number Column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, when recording results of PMCS. If you find something serious, notify organizational maintenance immediately.

c. Before you begin to check specific items, remember that there are some things to be checked that are common in all areas to be inspected on the tester. Always keep the items listed below in mind as you make your inspection and perform your PMCS.

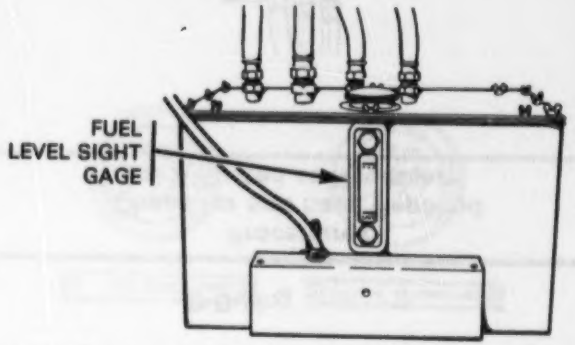
(1) Loose Bolts. While a loose bolt is sometimes difficult to spot without actually applying a wrench, you can often tell by loose or chipped paint around the bolthead and bare metal or rust at the base of the bolthead.

(2) Hoses and fluid lines. Check all hoses and fluid lines for signs of wear, leaks, loose clamps, and loose fittings. A stain around a fitting is a sign of a leak. The fitting should be either tightened, repaired, or replaced.

NOTE
Within designated interval, these checks are to be performed in the order listed.

B-Before D-During W-Weekly

Item No.	Interval B	Interval D	Interval W	Item to be Inspected	Procedures Check for and have Repaired or Adjusted as Necessary	For Readiness Reporting, Equipment will be Reported Not Ready/Available if:
					WARNING On some procedures in the PMCS the main power source must be on to perform inspection. Be careful when doing PMCS with main power source on. For all other procedures, main power source must be shut off.	
1	•			**FUEL TANK ASSEMBLY**	Remove RH panel assembly, check fuel level sight gage, and fill as required with fuel (item 13, app C).	



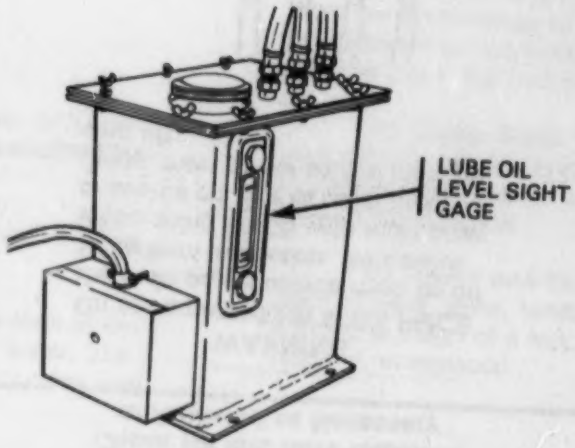
2-9. PMCS PROCEDURES (cont)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

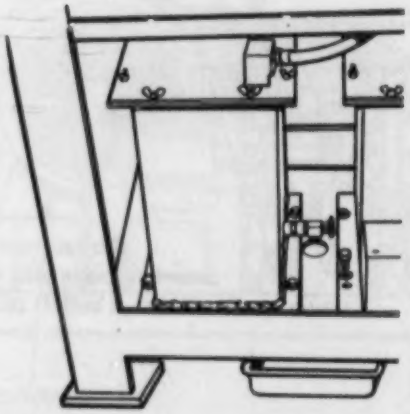
NOTE

Within designated interval, these checks are to be performed in the order listed.

B-Before D-During W-Weekly

Item No.	Interval B	Interval D	Interval W	Item to be Inspected	Procedures Check for and have Repaired or Adjusted as Necessary	For Readiness Reporting, Equipment will be Reported Not Ready/Available if:
2	•			LUBE OIL TANK ASSEMBLY	 Remove RH panel assembly, check lube oil level sight gage, and fill as required with lubricating oil (item 11, app C).	

3	•			**WASTE TANK ASSEMBLY**	After removing RH panel assembly, empty contents into an available minimum-size 3-gal. (11.36-l) pan.
4	•			**LUBE OIL AND FUEL TEMPERATURE GAGES**	Check that gages read room temperature.



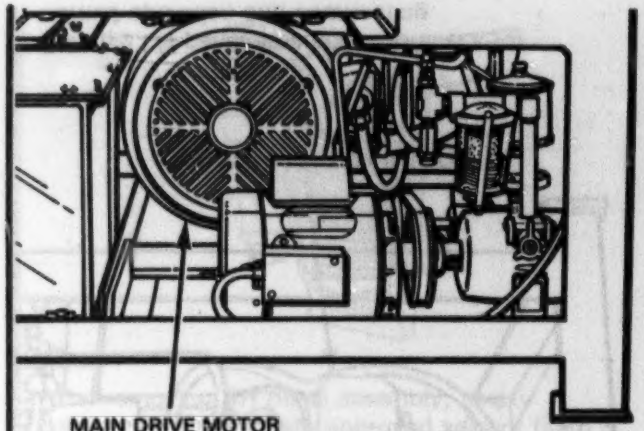
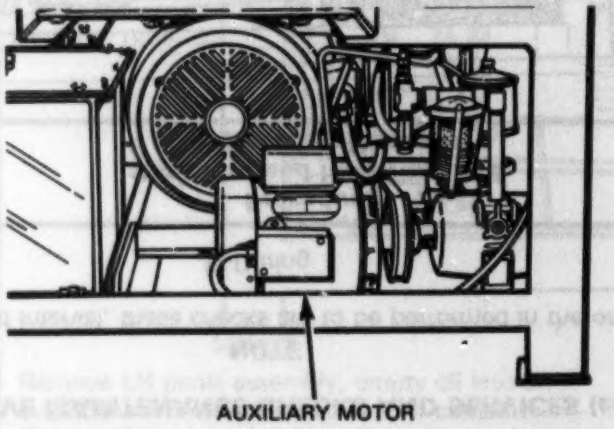
2-8. PMCS PROCEDURES (cont)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

NOTE
Within designated interval, these checks are to be performed in the order listed.

B-Before D-During W-Weekly

Item No.	Interval B	Interval D	Interval W	Item to be Inspected	Procedures Check for and have Repaired or Adjusted as Necessary	For Readiness Reporting. Equipment will be Reported Not Ready/Available If:
5		•		LUBE OIL AND FUEL PRESSURE GAGES	Check that gages show pressure when testing a fuel injector pump.	

6		•	MAIN DRIVE MOTOR (VARI-DRIVE MOTOR)	 MAIN DRIVE MOTOR **NOTE** Look for discoloration or peeling of paint as evidence of overheating. Remove lower back panel and check for normal operation and overheating.
7		•	AUXILIARY MOTOR	 AUXILIARY MOTOR Remove lower back panel and check for normal operation and overheating.

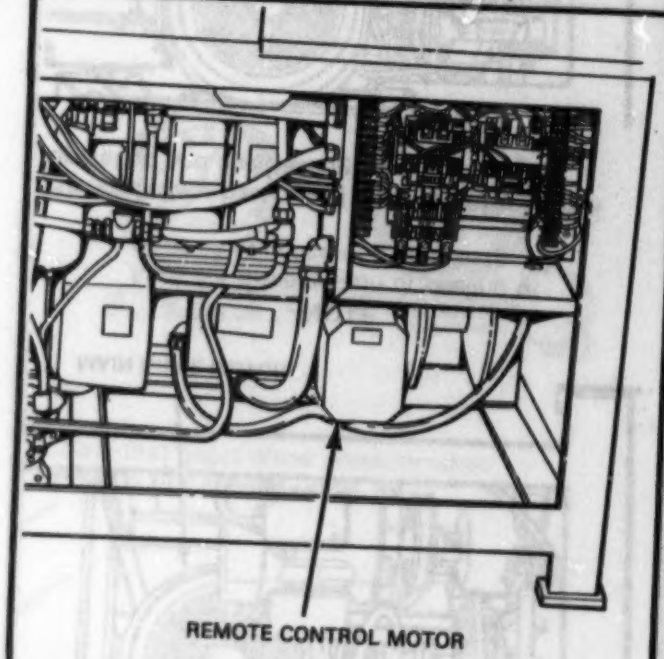
2-9. PMCS PROCEDURES (cont)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

NOTE
Within designated interval, these checks are to be performed in the order listed.

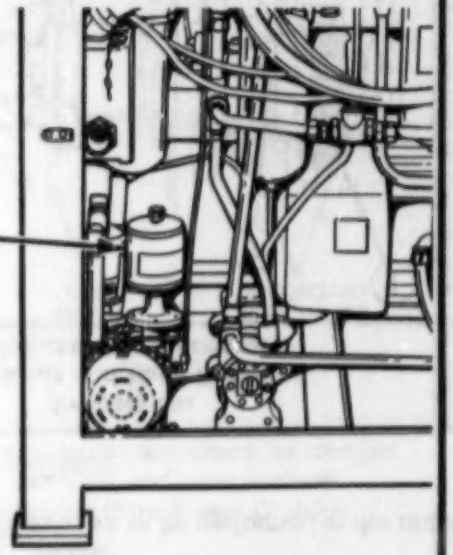
B-Before D-During W-Weekly

Item No.	Interval B	Interval D	Interval W	Item to be Inspected	Procedures Check for and have Repaired or Adjusted as Necessary	For Readiness Reporting, Equipment will be Reported Not Ready/Available If:
8			•	REMOTE CONTROL MOTOR	Remove LH panel assembly and check for	



normal operation and overheating.

9			•	MOISTURE AND OIL TRAP	After removing RH panel assembly, empty contents and clean with approved solvent (item 3, app C) using rag (item 14, app C) as required.	
10			•	EXHAUST TRAP (OIL RESERVE)	Remove LH panel assembly, empty oil into an available minimum-size 1-qt (0.95-l) container. Clean with approved solvent (item 3, app C) using rag (item 14, app C) as required. Refill with oil (item 9, app C), refer to page 3-31.	

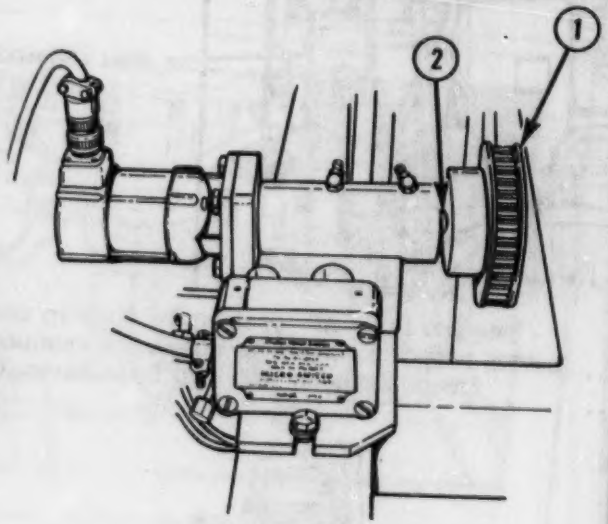


2-9. PMCS PROCEDURES (cont)

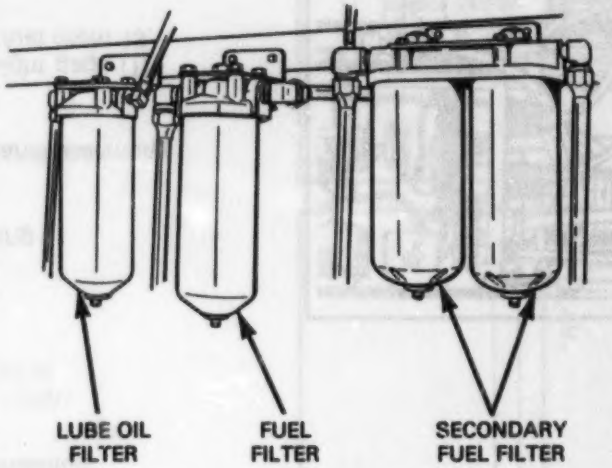
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

NOTE
Within designated interval, these checks are to be performed in the order listed.

B-Before D-During W-Weekly

Item No.	Interval B	Interval D	Interval W	Item to be Inspected	Procedures Check for and have Repaired or Adjusted as Necessary	For Readiness Reporting, Equipment will be Reported Not Ready/Available if:
11			•	COUNTER PULSE SWITCH AND TACHOMETER GENERATOR ASSEMBLY	 Remove upper back panel and check if pulley (1) moves up and down, which would indicate that the shaft assembly (2) is loose.	

12			•	POWER CABLE	Check power cable for cracks and burned or damaged condition. Check terminals and connections for tightness and corrosion. Clean with rag (item 14, app C) and tighten as necessary.	
13			•	LUBE OIL, PRIMARY FUEL, AND SECONDARY FUEL FILTERS	Remove LH panel assembly and check for clogged filter elements. Clean inner and outer surfaces with cleaning compound (item 3, app C) using rag (item 14, app C).	



Section III. OPERATION UNDER USUAL CONDITIONS

2-10. INTRODUCTION

a. This section contains instructions for the procedures necessary to operate the tester under usual conditions.

b. Recommended installation of the tester is in a protected area that is well lighted, dust free, sound absorbing, and climate controlled. Recommended room temperature is 72° F (22° C). This type of facility will be the responsibility of the using organization.

2-11. PREPARATION FOR USE

WARNING

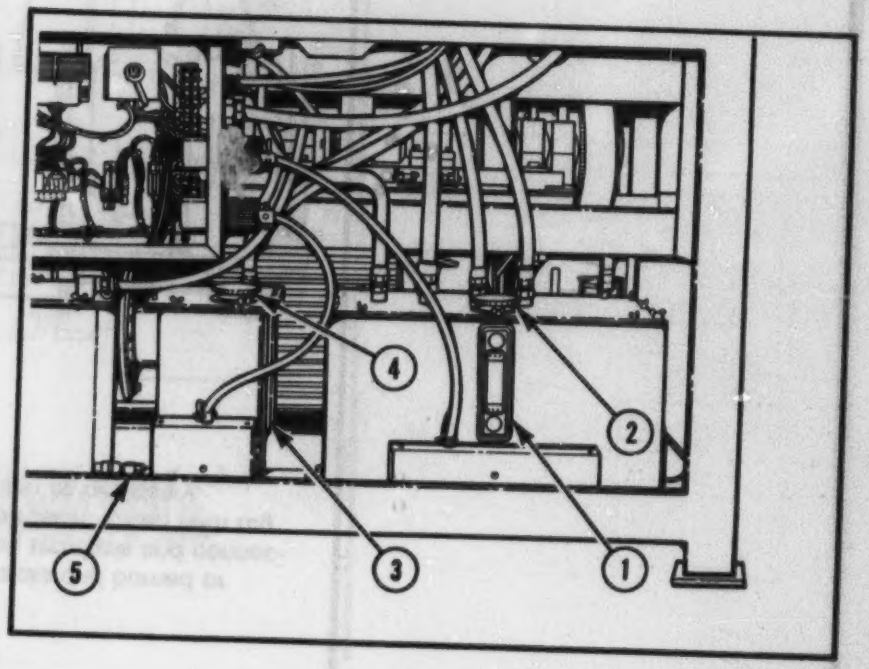
Shut off main power source when performing maintenance.

a. Before the tester can be used, remove RH panel assembly and perform the following procedures:

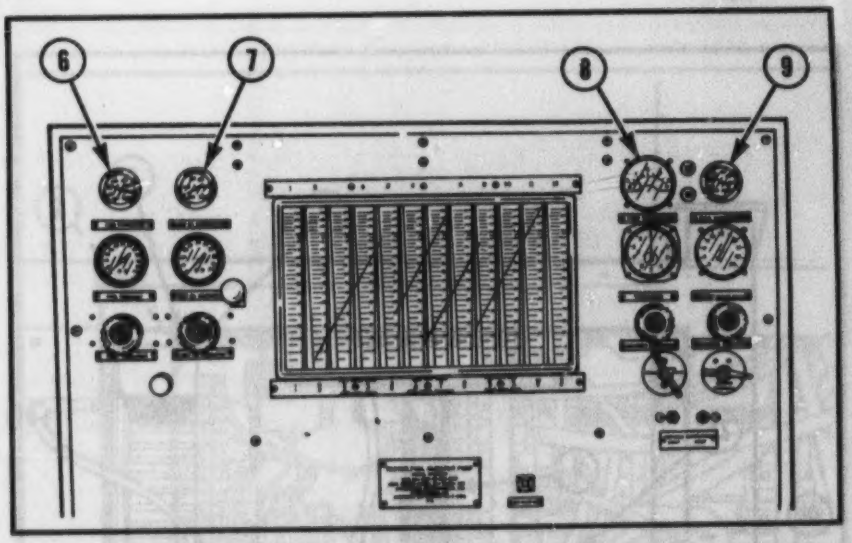
(1) Inspect fuel level by checking fuel level sight gage (1). Remove cap (2) and fill as required with fuel (item 13, app C).

(2) Inspect lube oil level by checking lube oil level sight gage (3). Remove cap (4) and fill as required with lubricating oil (item 11, app C).

(3) Drain contents of waste tank by opening valve (5) and draining contents into an available minimum-size 3-gal. (11.36-l) pan.



(4) Check the temperature gages (6), (7), (8), and (9) on the instrument panel assembly to see if they are showing correct room temperature.



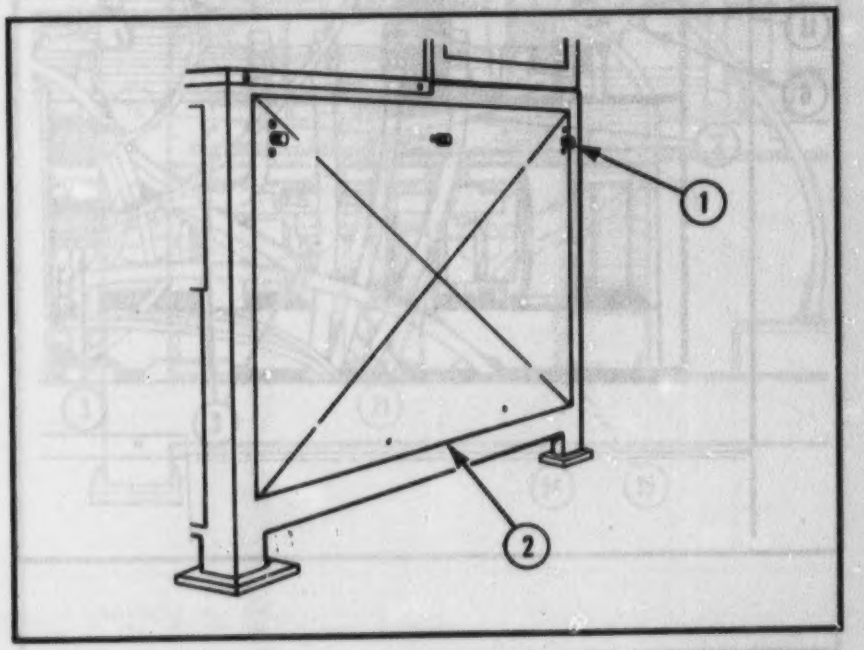
NOTE

If the tester has not been in use for six months or longer, remove and empty fuel, lube oil, and waste tanks by performing following steps:

b. Tag electrical plugs and hoses for reassembly.

(1) **Fuel Tank Assembly.**

(a) Turn three pawl fasteners (1) counterclockwise until they release and remove RH panel assembly (2).



2-11. PREPARATION FOR USE (cont)

(1) Fuel Tank Assembly. (cont)

(b) Disconnect all hoses (3) and remove four screws (4), four washers (5), and four clamps (6).

(c) Turn male connector plug (7) counterclockwise and pull out.

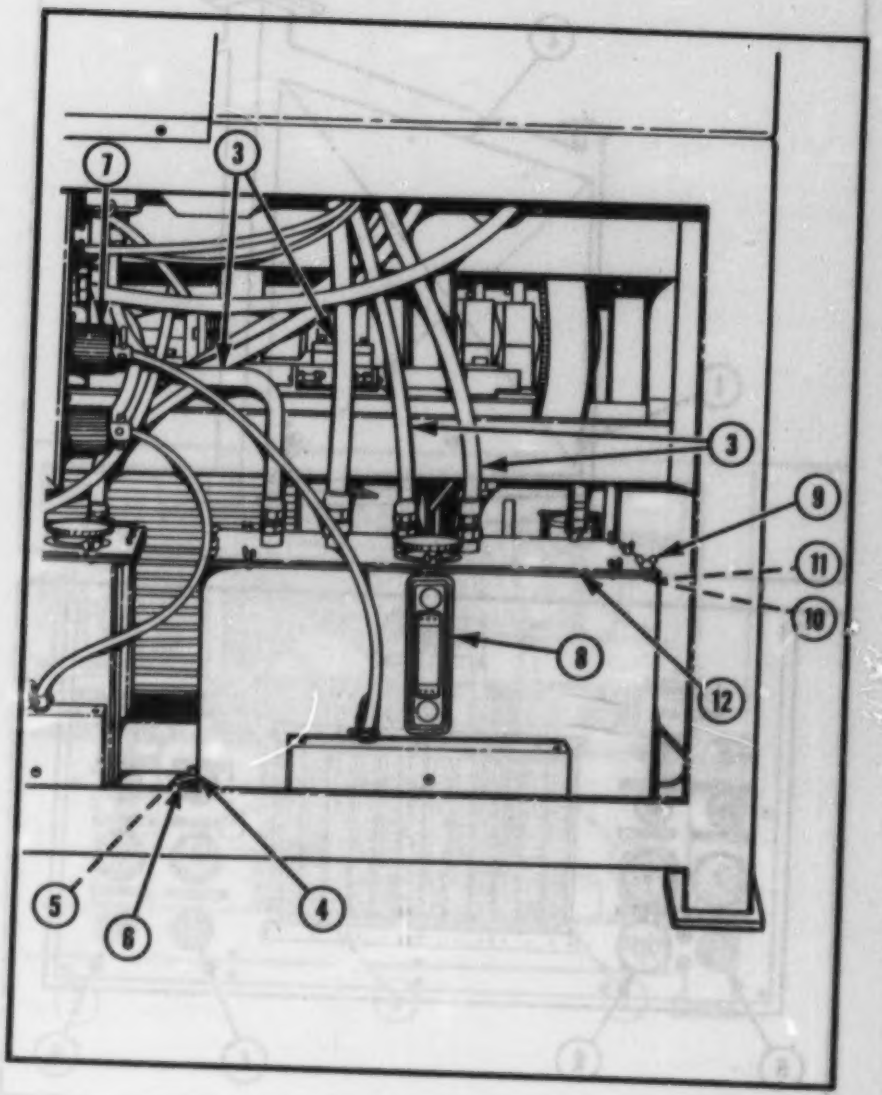
(d) Lift out fuel tank assembly.

NOTE

Screw and washer above fuel level sight gage (8) will not come out unless fuel level sight gage is removed.

(e) Remove twelve wingnuts (9), eleven screws (10), and eleven washers (11) on cover assembly (12), and remove cover assembly.

(f) Pour fuel out and clean with cleaning compound (item 3, app C) using rag (item 14, app C).



(2) Lube Oil Tank Assembly.

(a) Disconnect all hoses (13) and remove four screws (14) and four washers (15).

(b) Turn male connector plug (16) counterclockwise and pull out.

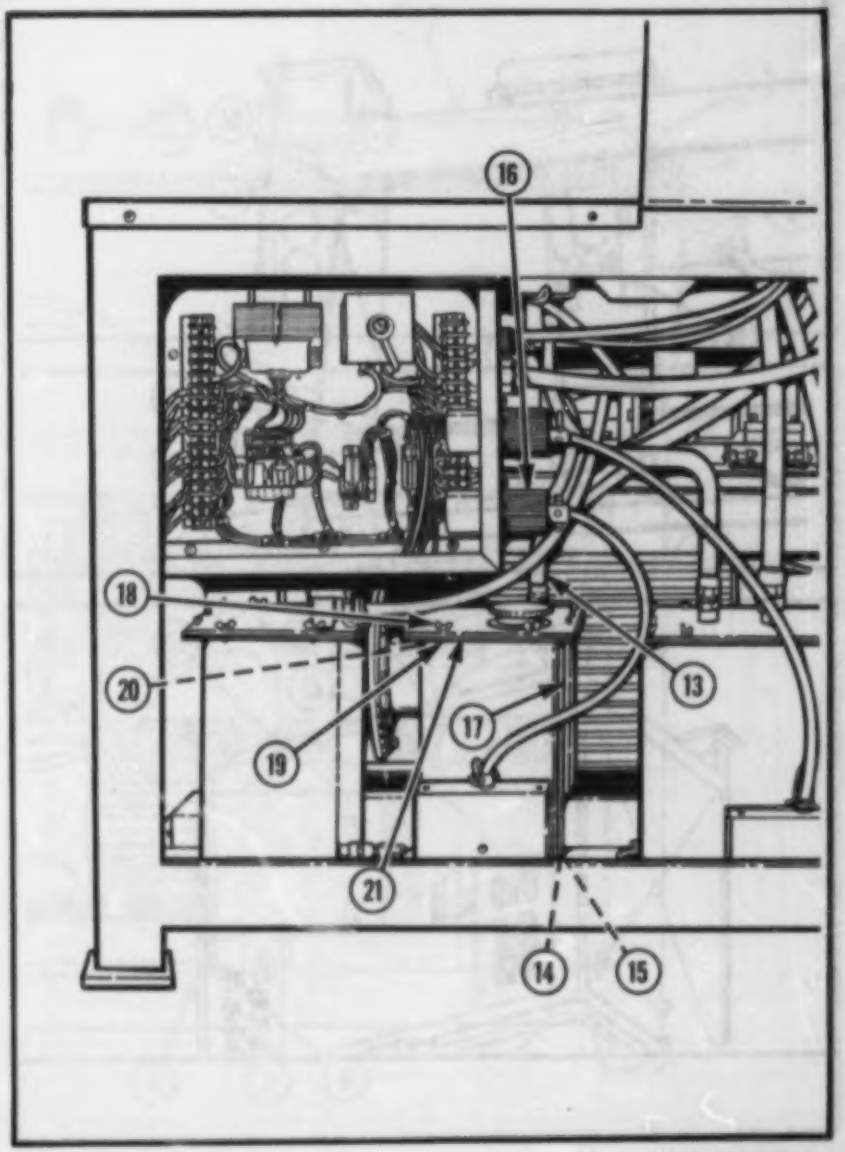
NOTE

Screw and washer above lube oil level sight gage (17) will not come out unless lube oil level sight gage is removed.

(c) Remove ten wingnuts (18), nine screws (19), and nine washers (20).

(d) Lift out lube oil tank assembly and remove cover assembly (21).

(e) Pour lube oil out and clean with cleaning compound (item 3, app C) using rag (item 14, app C).

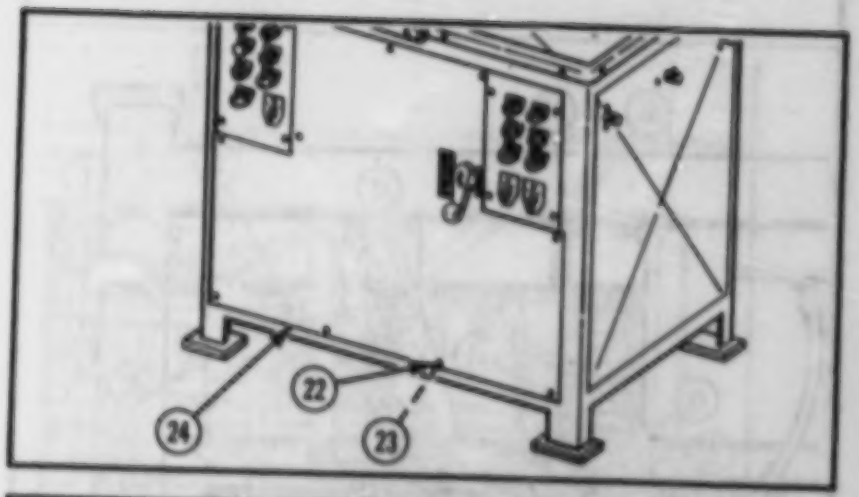


TM 9-4910-387-14-1

2-11. PREPARATION FOR USE (cont)

(3) Waste Tank Assembly.

(a) Remove twelve screws (22) and twelve washers (23) from front panel (24), and remove front panel.



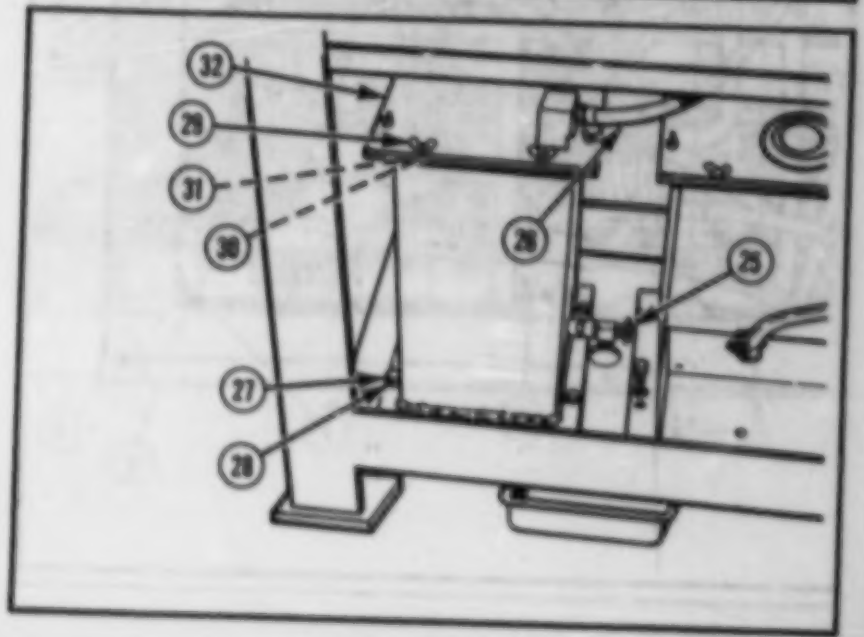
(b) Open valve (25) and empty contents of the waste tank into an available minimum-size 3-gal (11.36-l) pan and close valve.

(c) Disconnect hose (26) and remove four screws (27) and four washers (28).

(d) Lift waste tank assembly out through front of tester.

(e) Remove ten wingnuts (29), ten screws (30), and ten washers (31) on cover (32), and remove cover.

(f) Clean with cleaning compound (item 3, app C), using rag (item 14, app C).



c. In preparation for use, reinstall fuel, lube oil, and waste tanks by performing the following steps:

(1) **Fuel Tank Assembly.**

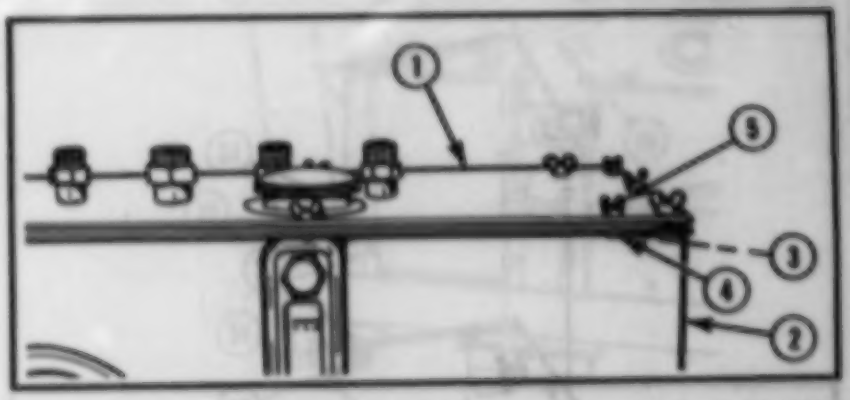
(a) Place cover assembly (1) on tank (2) and install eleven washers (3), eleven screws (4), and twelve wingnuts (5).

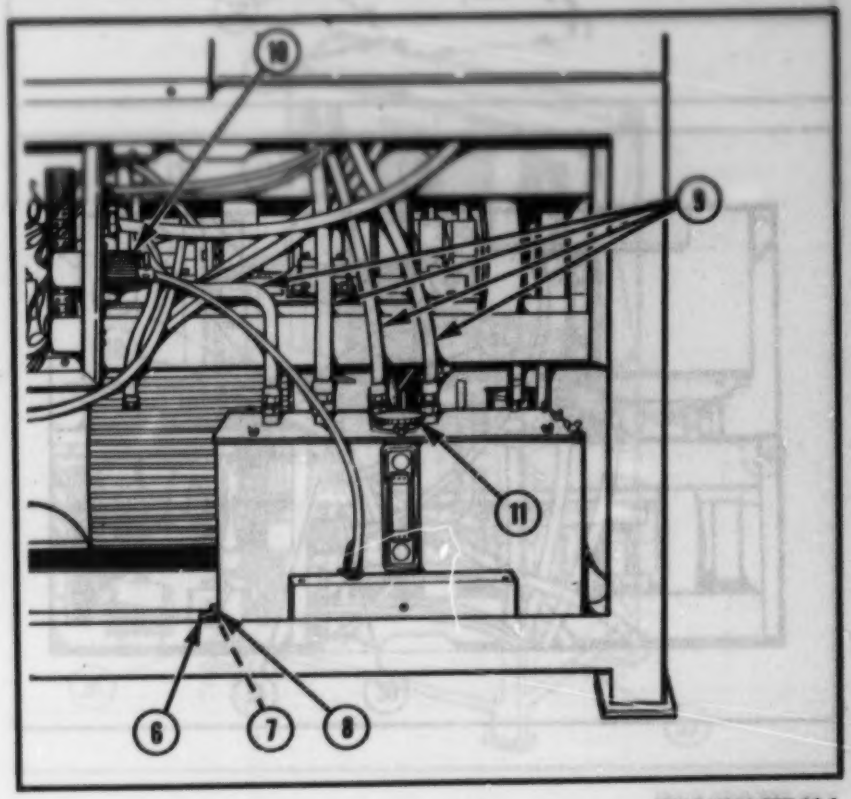
(b) Place fuel tank assembly in position in lower frame assembly.

(c) Install four clamps (6), four washers (7), and four screws (8) and connect all hoses (9).

(d) Insert male connector plug (10) and turn clockwise.

(e) Remove cap (11) and refill with fuel (item 13, app C) and replace cap.





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2-11. PREPARATION FOR USE (cont)

(2) Lube Oil Tank Assembly.

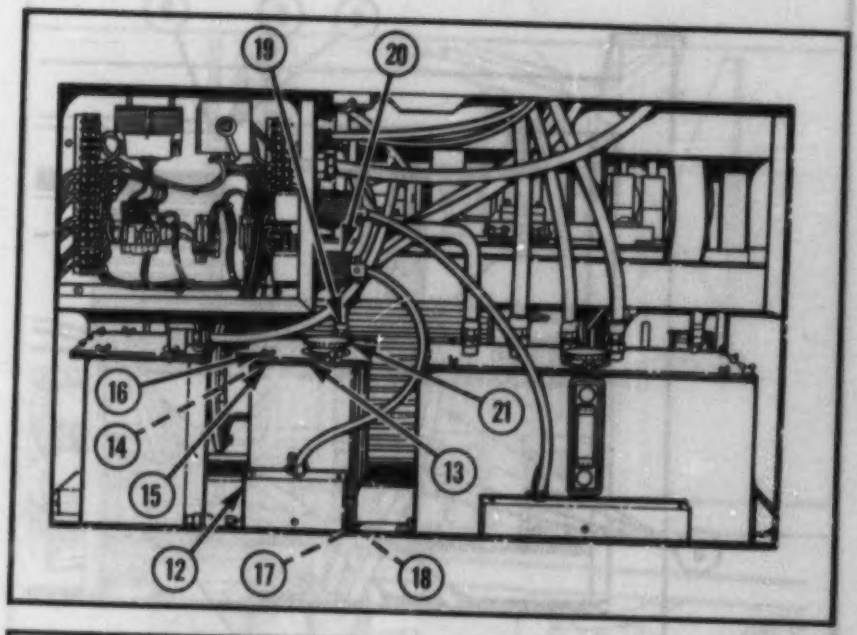
(a) Place tank (12) in position in lower frame assembly.

(b) Place cover assembly (13) on tank and install nine washers (14), nine screws (15), and ten wingnuts (16).

(c) Install four washers (17) and four screws (18) and connect all hoses (19).

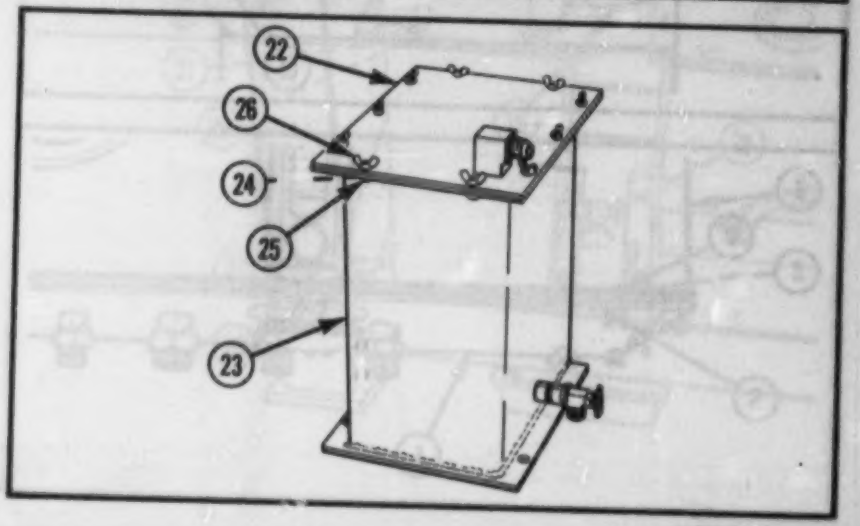
(d) Insert male connector plug (20) and turn clockwise.

(e) Remove cap (21) and refill with lubricating oil (item 11, app C) and replace cap.



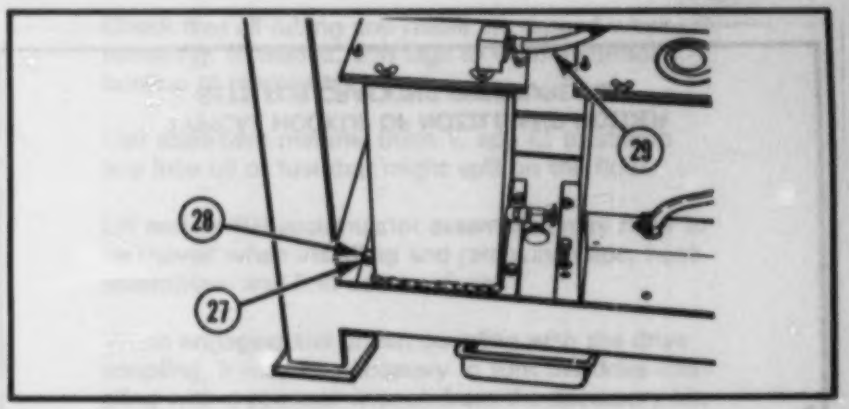
(3) Waste Tank Assembly.

(a) Place cover (22) on tank (23) and install ten washers (24), ten screws (25), and ten wingnuts (26).



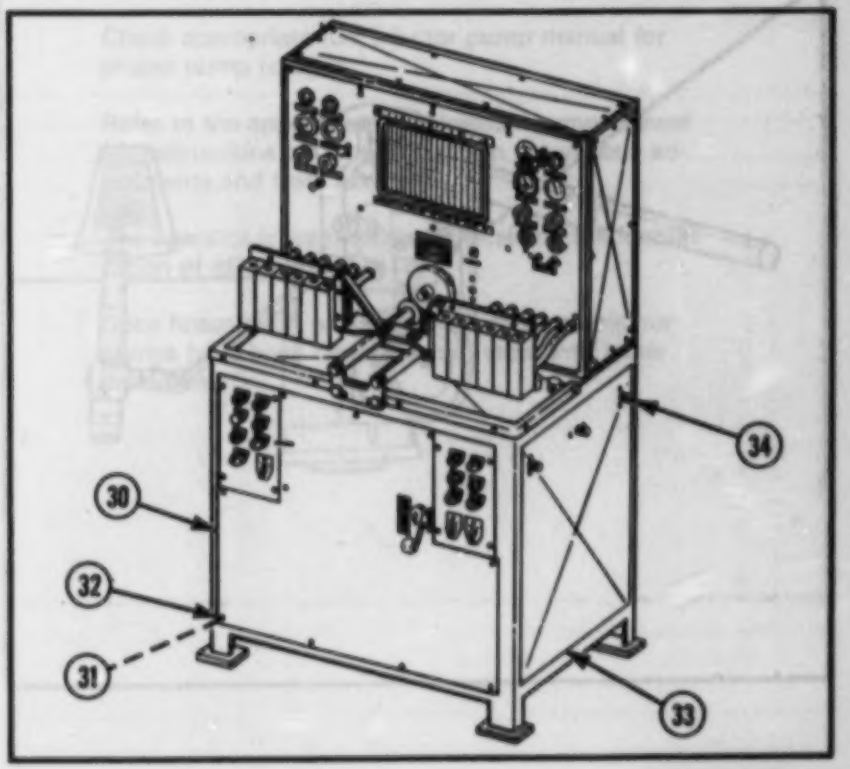
(b) Insert waste tank assembly through front of tester and position on lower frame assembly.

(c) Install four washers (27) and four screws (28) and connect hose (29).



(d) Replace front panel (30) and install twelve washers (31) and twelve screws (32).

(e) Replace RH panel assembly (33) and turn three pawl fasteners (34) clockwise to tighten.



2-12. OPERATING PROCEDURE. GENERAL INSTRUCTIONS

a. There is a total of ten fuel injector pumps that could be tested on the tester. The following paragraphs (2-13 thru 2-22) give installation and removal instructions for each fuel injector pump. See paragraph 1-6 for capabilities and features.

b. Hookup procedures for cracking pressure test for nozzle and holder sets are the same for the following fuel injector pumps:

- American Bosch APE-6BB
- American Bosch PSB-6A
- American Bosch PSB-6
- American Bosch PSB-12BT
- International Harvester 3200
- American Bosch PSJ-6A
- Caterpillar
- Roosa Master

NOTE

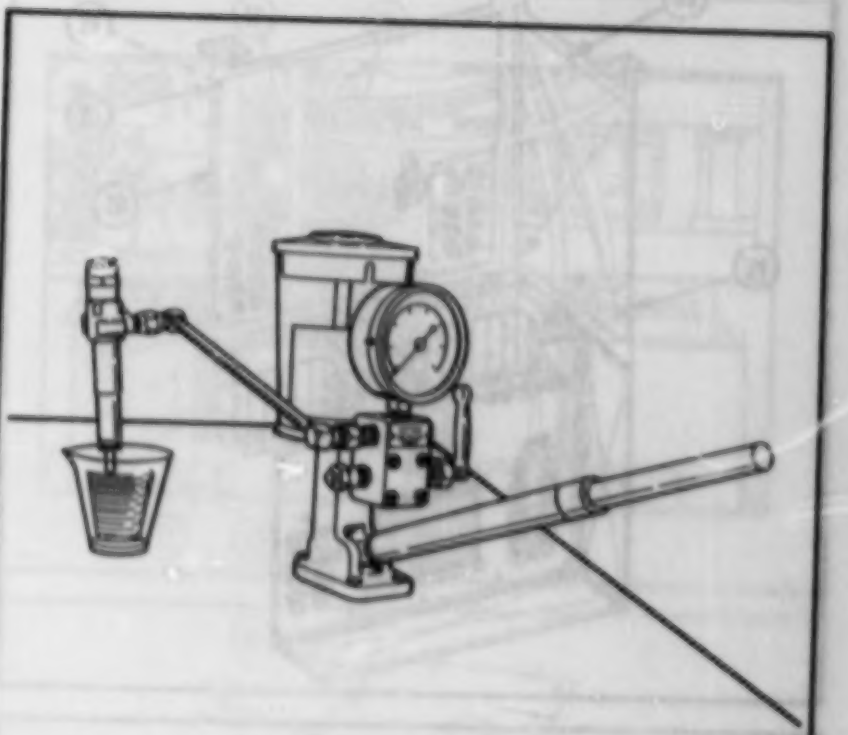
Nozzle tester is also utilized for performing delivery valve and head leakage tests on fuel injector pumps.

(1) The hookup procedures for Simmonds SU fuel injector pump will be covered in paragraph 2-17, page 2-77. To test the Cummins nozzle adapter assembly, use a comparator.

WARNING

Do not put hand or any part of body under nozzle and holder set under test, as high pressure will develop and cause injury.

(2) Connector parts needed to install a nozzle and holder set to the nozzle tester may vary with each nozzle and holder set tested. Use appropriate connector parts from the fuel injection test set for installation.



TYPICAL HOOKUP OF NOZZLE AND HOLDER SETS FOR CRACKING PRESSURE TEST

c. The following warnings, caution, and notes apply to each fuel injector pump.

WARNING

When in continuous operation, the fuel and lube oil can reach temperatures which could cause serious burns. The tester does not have any facilities to cool the fuel or lube oil systems. Use care when removing adapter kit parts.

Ensure that the clamp bar is positioned underneath and across the mounting rails and that the hand knob assembly is securely tightened. This is the only way to secure a fuel injector pump to the mounting rails.

CAUTION

Plate of accumulator mounting assembly can not be placed closer than 1.50 in. (3.81 cm) to the instrument panel.

NOTE

Each fuel injector pump may require a different temperature setting for the lube oil and fuel thermostats. Refer to the respective TM covering each fuel injector pump for this information. Furthermore all tests for fuel delivery are covered in applicable TM's for each pump.

Check that all tubing and hoses are tagged when removing. If needed, add tags to ensure correct hookup at reassembly.

Use absorbent material (item 1, app C) to absorb any lube oil or fuel that might spill on the floor.

LH and/or RH accumulator assemblies may need to be moved when installing and removing caps, hose assemblies, and fuel delivery lines.

When engaging the driven coupling with the drive coupling, it may be necessary to turn the drive coupling with a spanner wrench from the accessory kit.

Check appropriate fuel injector pump manual for proper pump rotation.

Refer to the appropriate fuel injector pump manual for instructions on how to perform the various adjustments and tests needed.

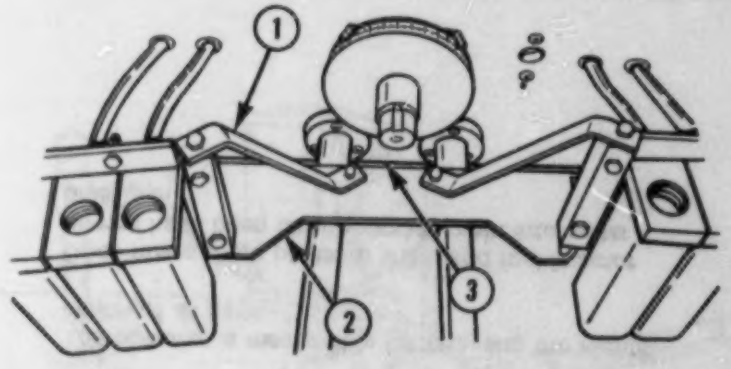
The operator is responsible for retaining the identification of all parts.

Once hoses, high pressure lines, and fuel injector pumps have been disconnected, drain into tester drain pan.

2-13. AMERICAN BOSCH APE-68B FUEL INJECTOR PUMP

INSTALLATION

1 ACCUMULATOR MOUNTING ASSEMBLY (1). Position plate (2) 1.50 in. (3.81 cm) from instrument panel (3).

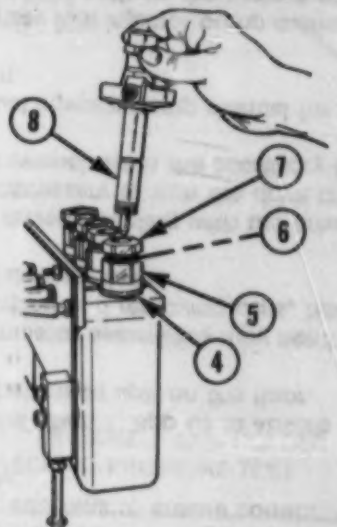


2 SIX NOZZLE ADAPTER GASKETS (11020348) (4), SIX HOLDER BODIES (11020350) (5), SIX PREFORMED PACKINGS (MS29513-211) (6), AND SIX NOZZLE HOLDER GLANDS (11020351) (7). Install on left side of tester.

CAUTION

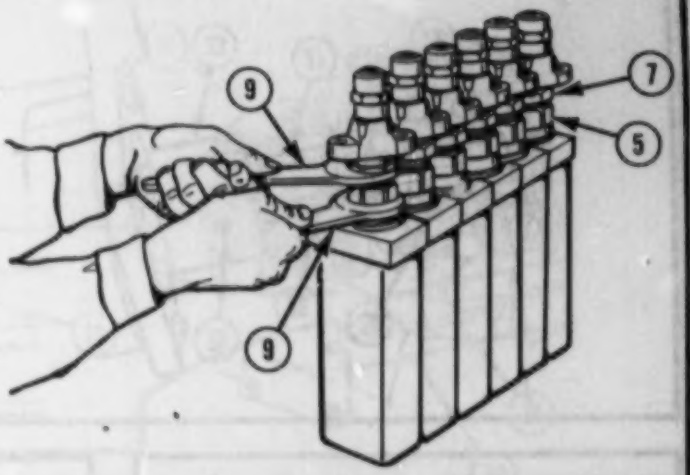
Be careful when installing nozzle and holder sets to avoid damaging the ends.

3 SIX NOZZLE AND HOLDER SETS (8). Install.



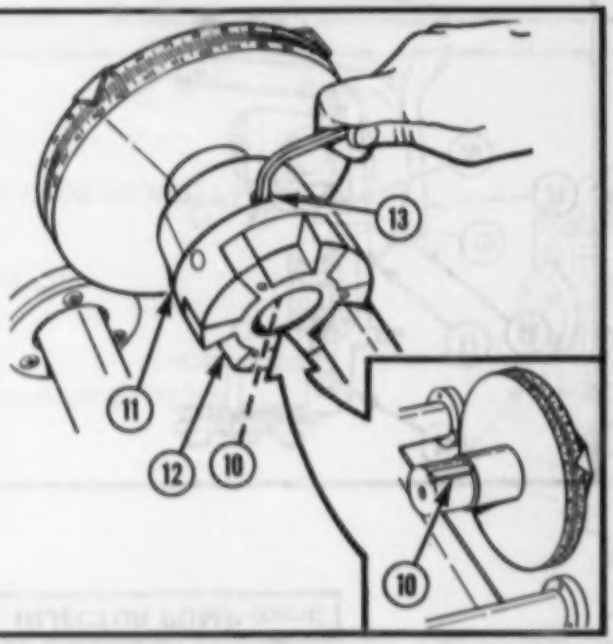
CAUTION
Do not overtighten six holder bodies and six nozzle holder glands as preformed packing will be distorted.

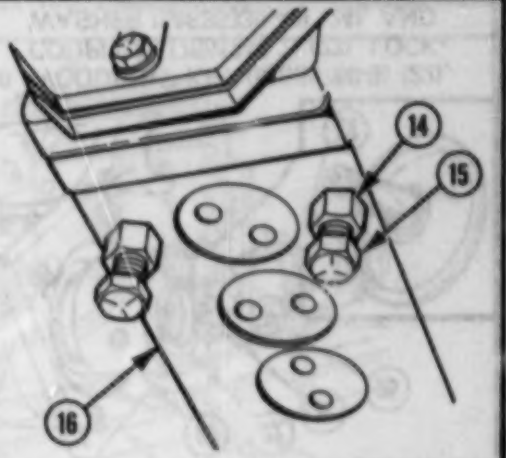
4 SIX HOLDER BODIES (5) AND SIX NOZZLE HOLDER GLANDS (7). Tighten using two nozzle adapter wrenches (9).



5 KEY (MS20067-271) (10), DRIVE COUPLING (7551246) (11), AND FLEXIBLE COUPLING INSERT (L110S0X) (12). Install.

6 SETSCREW (MS51963-85) (13). Tighten.





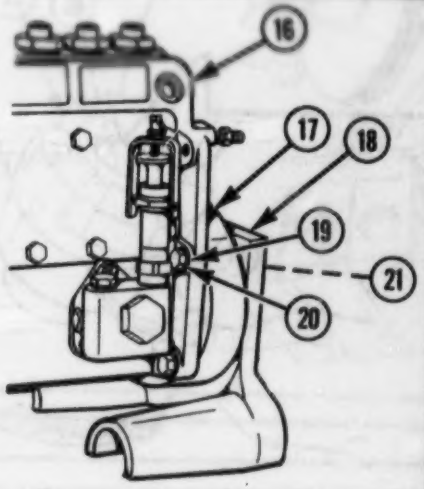
7 TWO NUTS (MS51967-11) (14) AND TWO CAPSCREWS (MS90725-85) (15). Install in bottom of fuel injector pump (16) for leveling purposes.

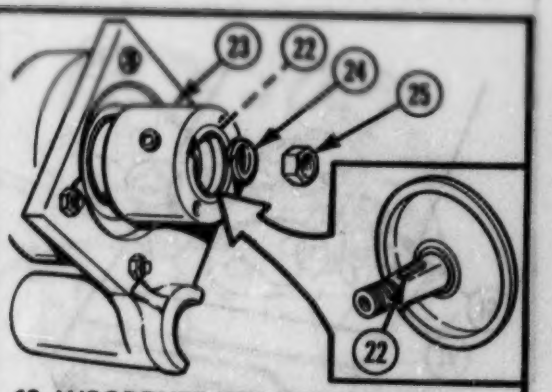
2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

8 ADAPTER RING ASSEMBLY (7551286) (17) AND ADAPTER BRACKET (18). Position on fuel injector pump (16).

9 FOUR WASHERS (MS27183-14) (19), FOUR SCREWS (MS90725-70) (20), AND FOUR NUTS (MS51967-8) (21). Install.





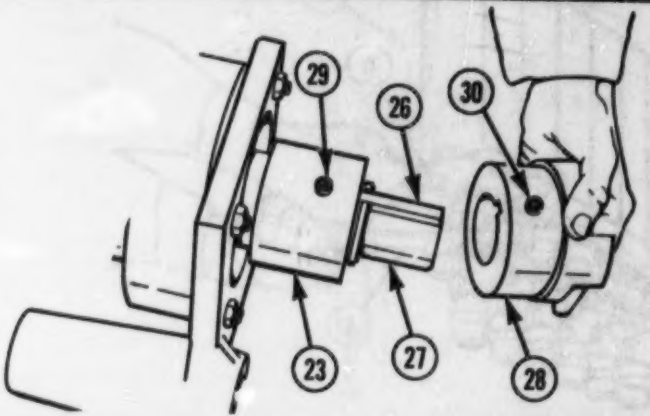
10 WOODRUFF KEY (MS35756-9) (22), COUPLING (7551244-2) (23), LOCKWASHER (MS35338-49) (24), AND NUT (7551298) (25). Install on fuel injector pump shaft.

11 KEY (MS20066-410) (26). Install in shaft (7551245) (27).

12 SHAFT (27). Install in coupling (23).

13 DRIVEN COUPLING (7551229) (28). Install on shaft (27).

14 TWO SETSCREWS (MS51963-85) (29) AND (MS51963-103) (30). Tighten.



15 PLATE (7551297) (31). Place on mounting rails (32) at the back.

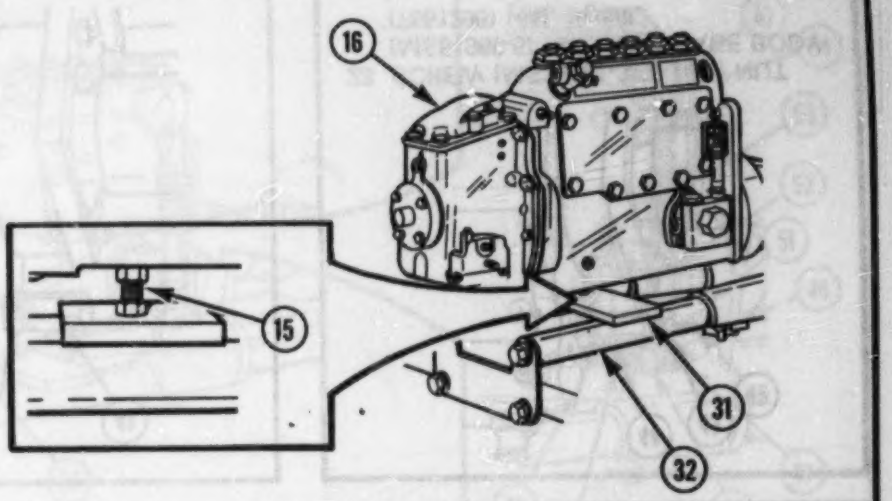
NOTE

Aline two capscrews on fuel injector pump with two holes in plate.

16 FUEL INJECTOR PUMP (16).

a. Place on plate (31) on mounting rails (32).

b. Adjust two capscrews (15) to level.



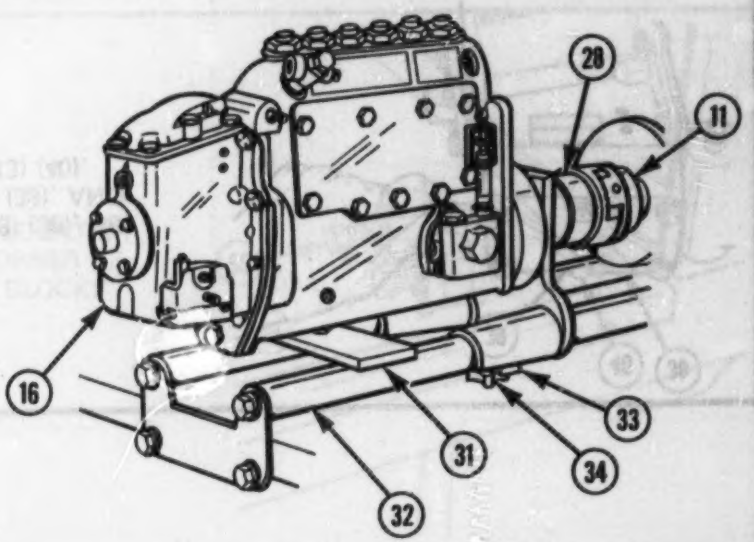
17 CLAMP BAR (11020262) (33) AND HAND KNOB ASSEMBLY (11020266) (34). Install.

18 FUEL INJECTOR PUMP (16) WITH PLATE (31).

a. Slide forward on mounting rails (32).

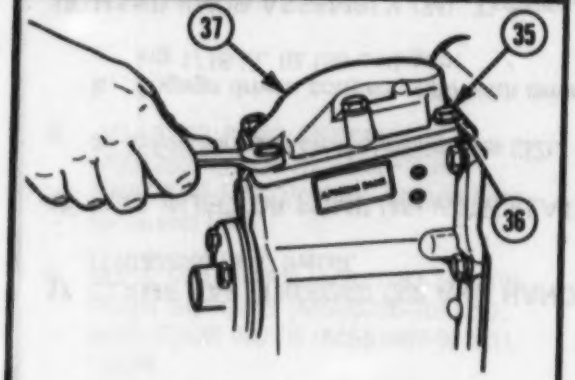
b. Engage driven coupling (28) with drive coupling (11) leaving 1/16-in. (0.159-cm) gap.

19 HAND KNOB ASSEMBLY (34). Tighten.



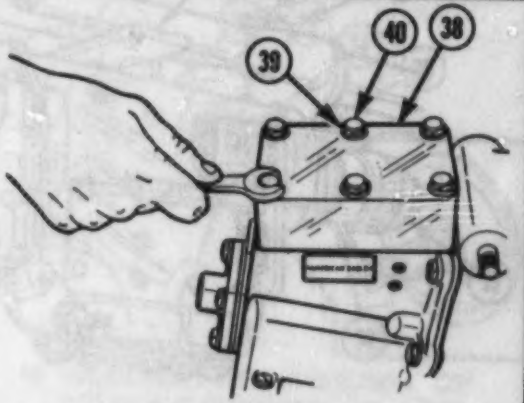
2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

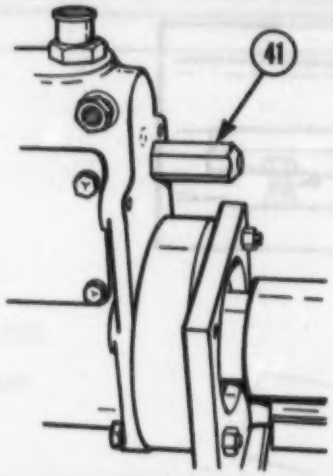


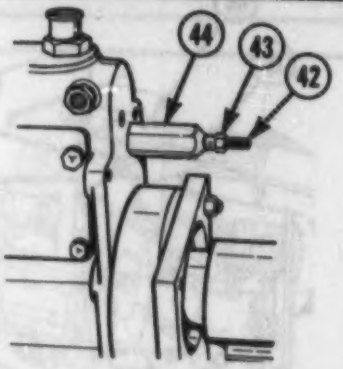
20 SIX SCREWS (35), SIX WASHERS (36), AND CAP (37). Remove.

21 CAP ASSEMBLY (7551288) (38), SIX WASHERS (MS27183-10) (39), AND SIX SCREWS (MS90725-13) (40). Install.



22 PROTECTIVE COVER (41). Remove.





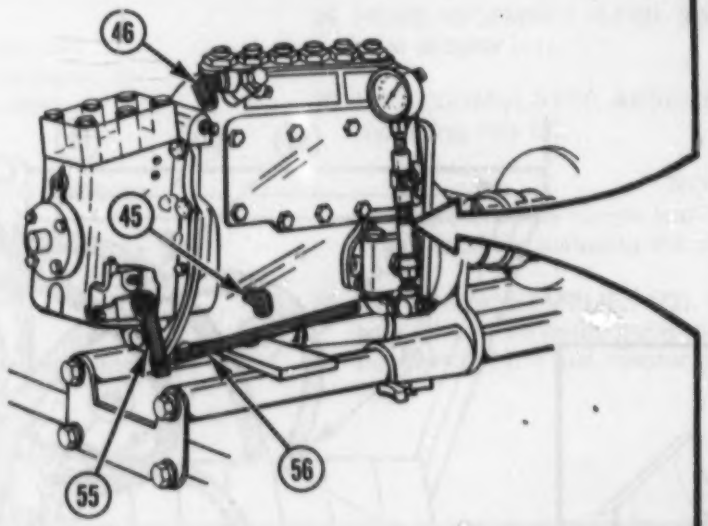
23 SCREW (MS35191-312) (42), NUT (MS51968-5) (43), AND GAGE BODY (7551296) (44). Install.

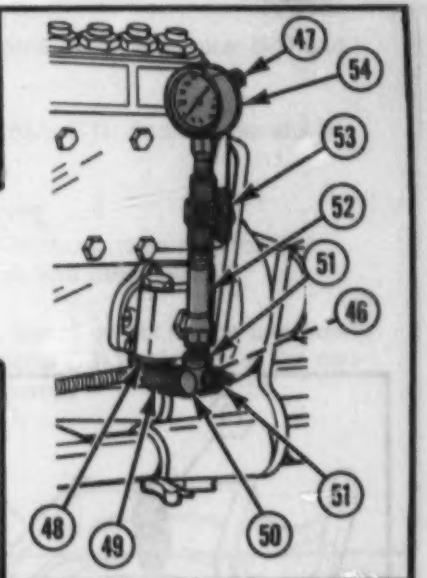
24 ELBOW (MS39162-3) (45), TWO ELBOWS (8-4 010202) (46), AND TUBE ADAPTER (MS39158-5) (47). Install.

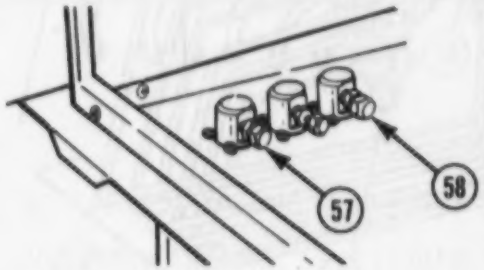
25 RETAINER (7551295) (48), PIPE STREET ELBOW (MS39230-2) (49), PIPE TEE (4-4-4 140424) (50), TWO TUBE ADAPTERS (MS39158-5) (51), HOSE ASSEMBLY (7550081-9) (52), SHUTOFF COCK (MS35934-2) (53), AND PRESSURE GAGE (7551253) (54). Install.

26 LEVER ASSEMBLY (7551248) (55). Install.

27 THROTTLE SPRING (11020442) (56). Install one end on lever assembly (55) and other end on retainer (48).

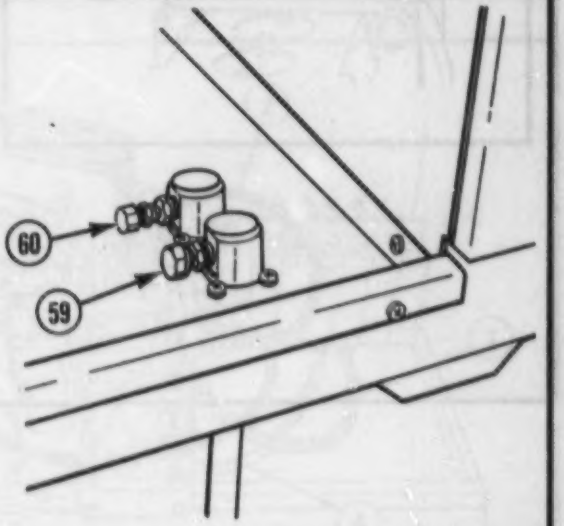






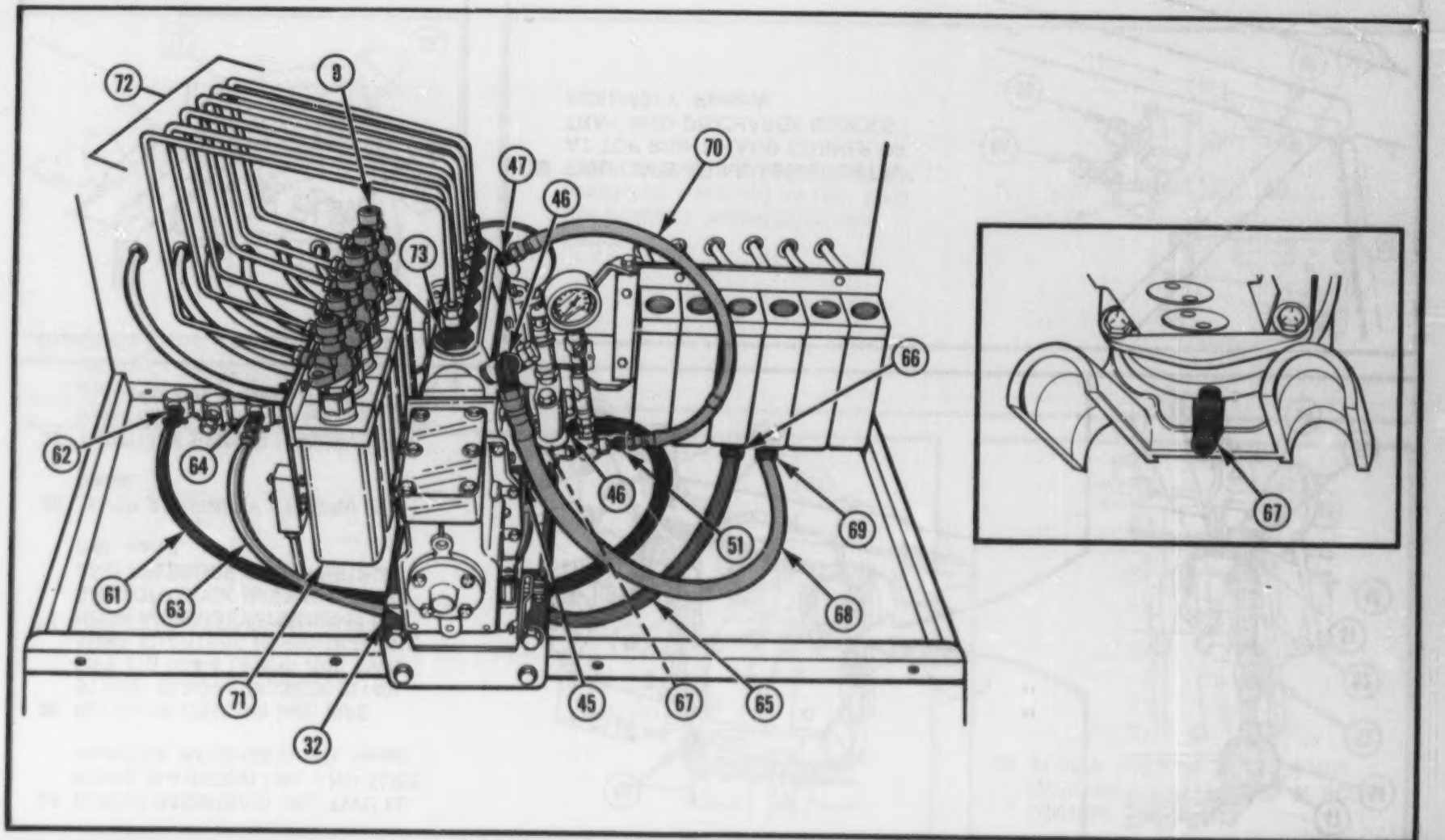
28 TWO CAPS (57 AND 58) LOCATED AT TOP LEFT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.

29 TWO CAPS (59 AND 60) LOCATED AT TOP RIGHT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.



2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash number.

30 HOSE ASSEMBLY -3 (61). Install on fuel pressure connector (62) and elbow (46).

31 HOSE ASSEMBLY -1 (63). Install on lube oil pressure connector (64) and elbow (45).

32 HOSE ASSEMBLY -15 (65). Install on lube oil return connector (66) and connector (67) on adapter ring assembly.

33 HOSE ASSEMBLY -2 (68). Install on elbow (46) and fuel return connector (69).

34 HOSE ASSEMBLY -6 (70). Install on tube adapter (51) and tube adapter (47).

35 LH ACCUMULATOR ASSEMBLY (71). Position parallel to mounting rails (32).

NOTE

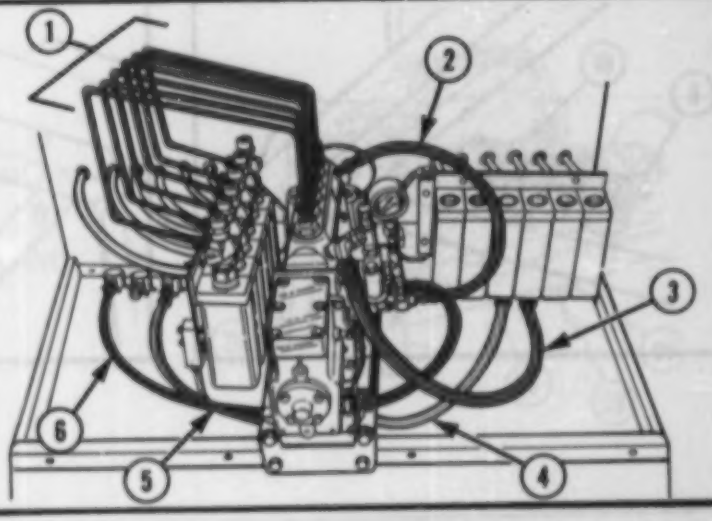
Reposition six nozzle and holder sets as necessary to facilitate installing the six line assemblies.

36 SIX LINE ASSEMBLIES (72). Install on six nozzle and holder sets (8) and six pump outlet ports (73) beginning at the coupling end of the fuel injector pump.

REMOVAL

1 SIX LINE ASSEMBLIES (1). Remove.

2 FIVE HOSE ASSEMBLIES (2 THRU 6). Remove.



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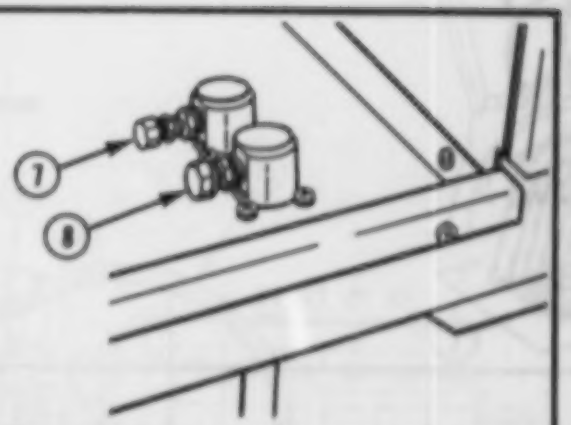
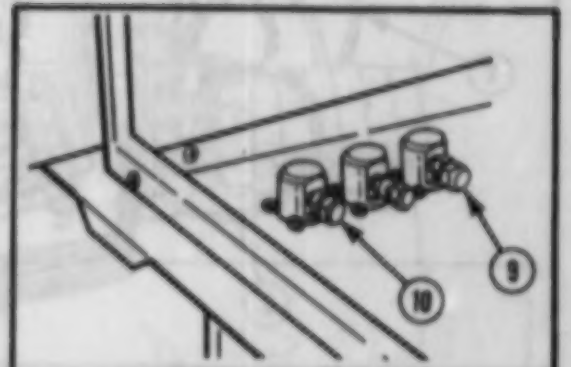
2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

3 TWO CAPS (7 AND 8). Install.



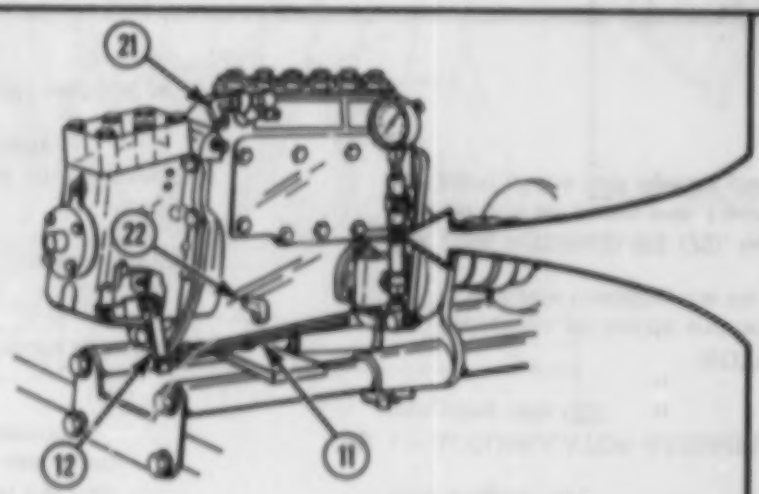


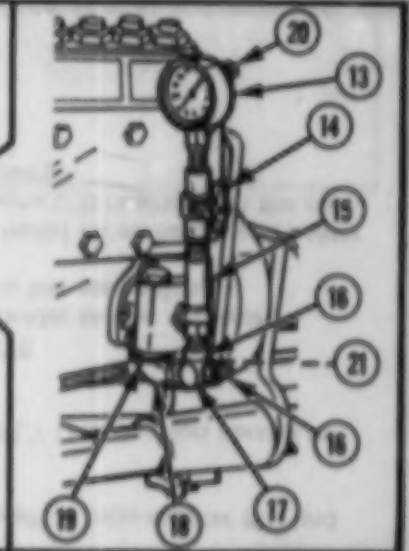
4 TWO CAPS (9 AND 10). Install.

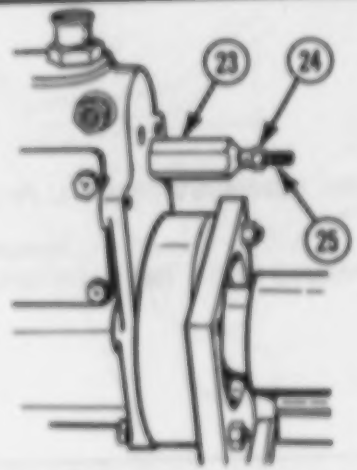
5 THROTTLE SPRING (11) AND LEVER ASSEMBLY (12). Remove.

6 PRESSURE GAGE (13), SHUTOFF COCK (14), HOSE ASSEMBLY (15), TWO TUBE ADAPTERS (16), PIPE TEE (17), PIPE STREET ELBOW (18), AND RETAINER (19). Remove.

7 TUBE ADAPTER (20), TWO ELBOWS (21), AND ELBOW (22). Remove.

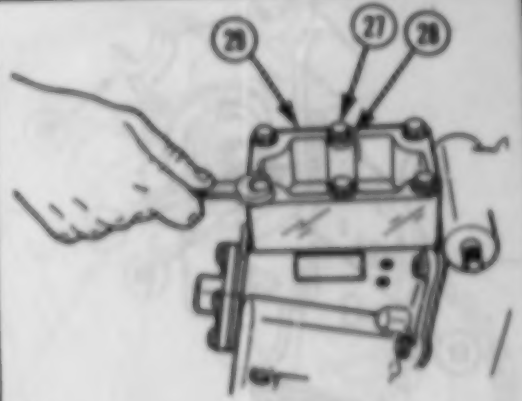




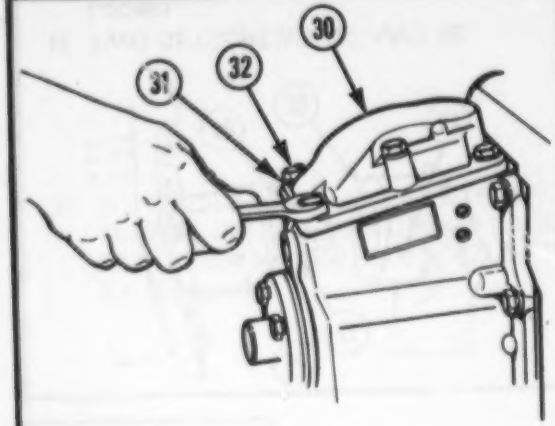


8 GAGE BODY (23), NUT (24), AND SCREW (25). Remove.

9 PROTECTIVE COVER (26). Install.



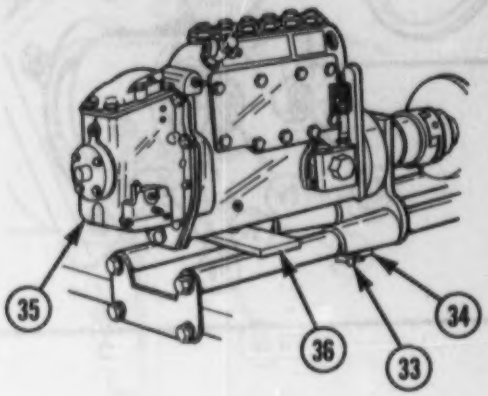
10 SIX SCREWS (27), SIX WASHERS (28), AND CAP ASSEMBLY (29). Remove.



11 CAP (30), SIX WASHERS (31), AND SIX SCREWS (32). Install.

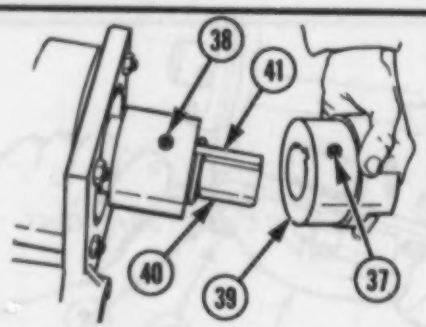
12 HAND KNOB ASSEMBLY (33) AND CLAMP BAR (34). Remove.

13 FUEL INJECTOR PUMP (35) AND PLATE (36). Remove.



2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

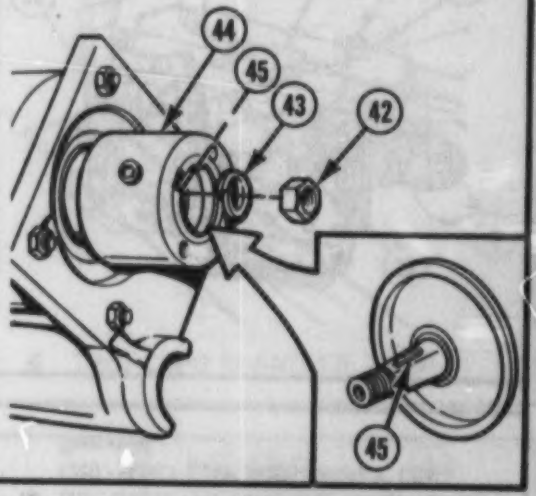
REMOVAL (cont)



14 TWO SETSCREWS (37 AND 38). Loosen.

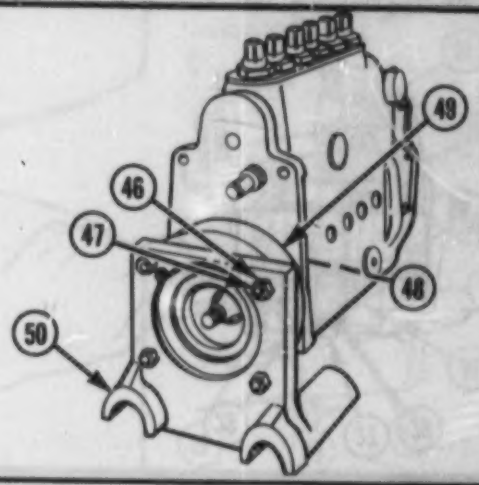
15 DRIVEN COUPLING (39), SHAFT (40), AND KEY (41). Remove.

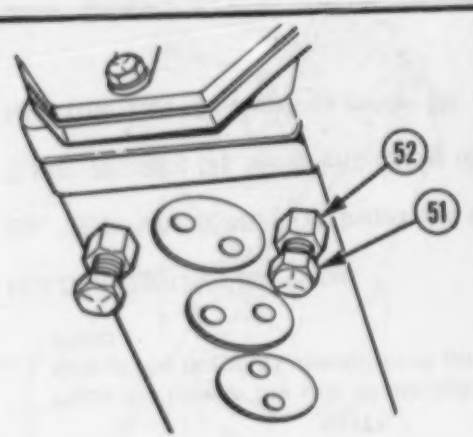
16 NUT (42), LOCKWASHER (43), COUPLING (44), AND WOODRUFF KEY (45). Remove.



17 FOUR NUTS (46), FOUR SCREWS (47), AND FOUR WASHERS (48). Remove.

18 ADAPTER RING ASSEMBLY (49) AND ADAPTER BRACKET (50). Remove.

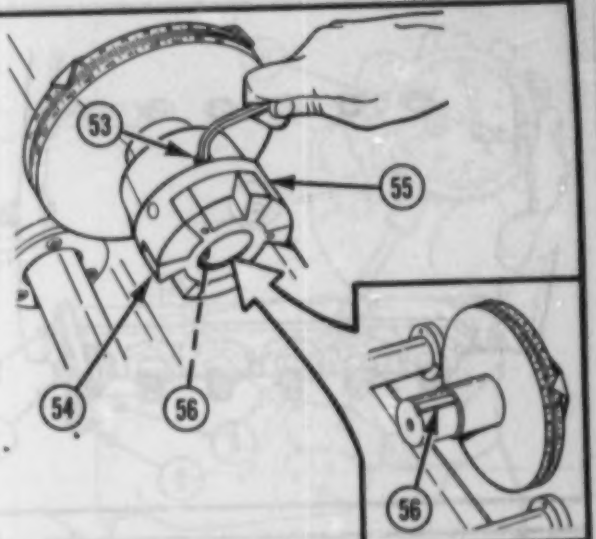




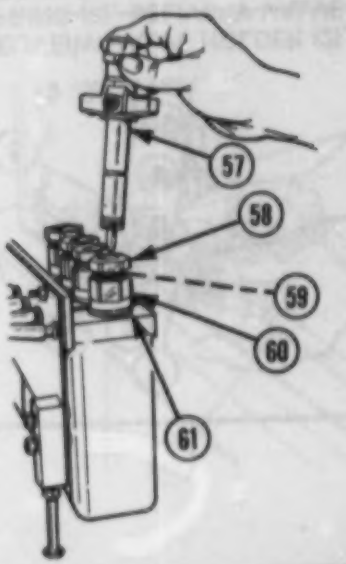
19 TWO CAPSCREWS (51) AND TWO NUTS (52). Remove.

20 SETSCREW (53). Locsen.

21 FLEXIBLE COUPLING INSERT (54), DRIVE COUPLING (55), AND KEY (56). Remove.



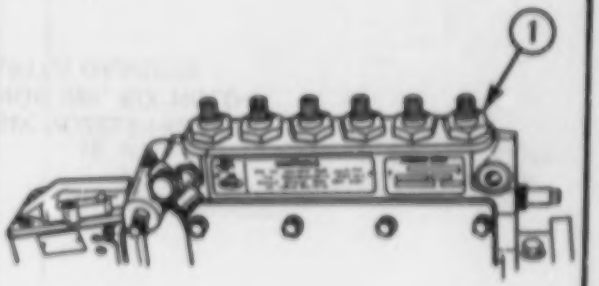
22 SIX NOZZLE AND HOLDER SETS (57), SIX NOZZLE HOLDER GLANDS (58), SIX PREFORMED PACKINGS (59), SIX HOLDER BODIES (60), AND SIX NOZZLE ADAPTER GASKETS (61). Remove.

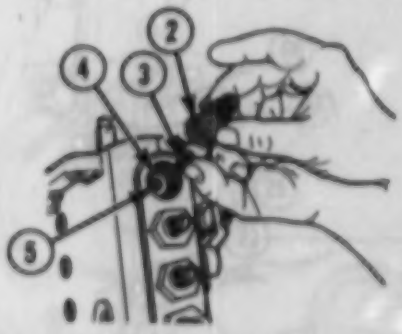


2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

HOOKUP FOR INTERNAL TIMING TEST

1 DELIVERY VALVE NUT (1). Remove.





2 DELIVERY VALVE HOLDER (2), SPRING (3), DELIVERY VALVE (4), AND NEEDLE VALVE (5). Remove.

NOTE

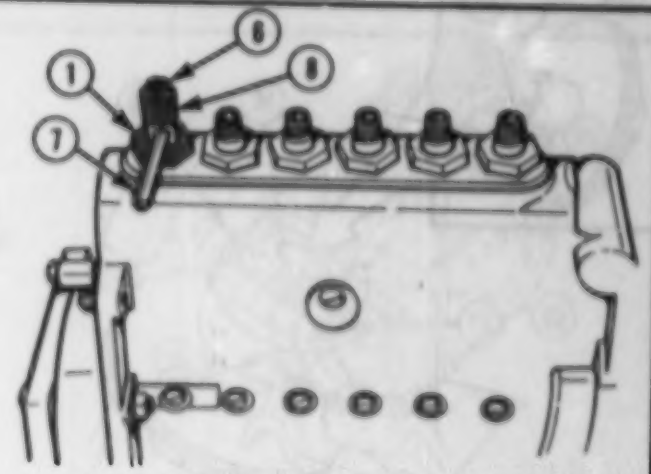
Place the hole in the side of the holder to the left side of the pump as viewed from governor end of pump.

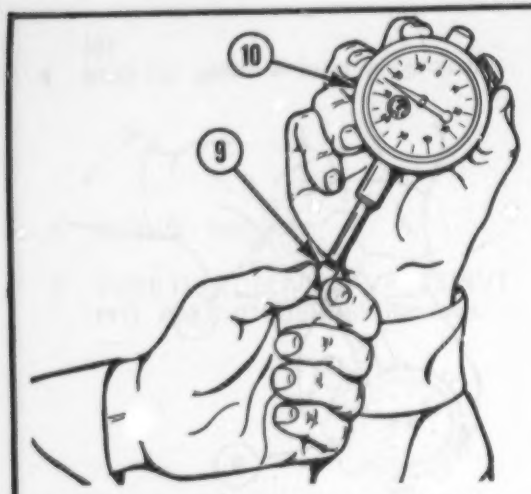
3 HOLDER (7551292) (6). Install.

4 DELIVERY VALVE NUT (1). Install and tighten.

5 TUBE (7551291) (7). Install into holder (6).

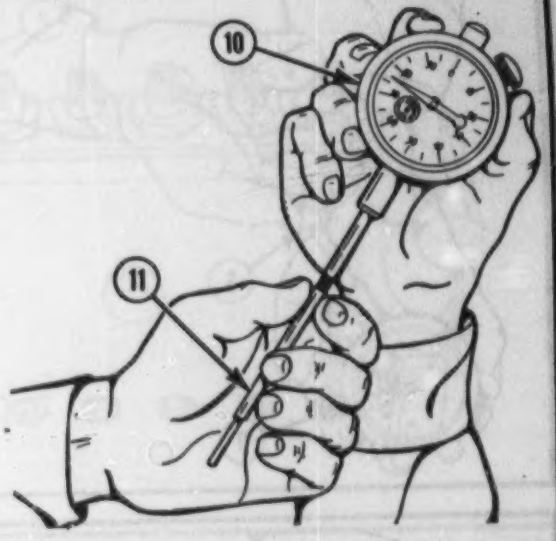
6 NUT (7551293) (8). Install on holder (6), but do not tighten.





7 TIP (9). Remove from dial indicator (7551254) (10).

8 ROD (7551294) (11). Install in dial indicator (10).

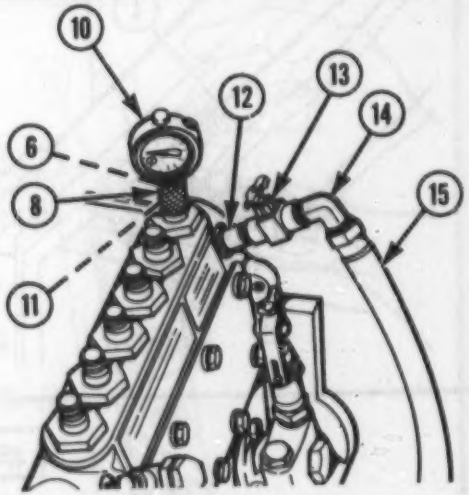


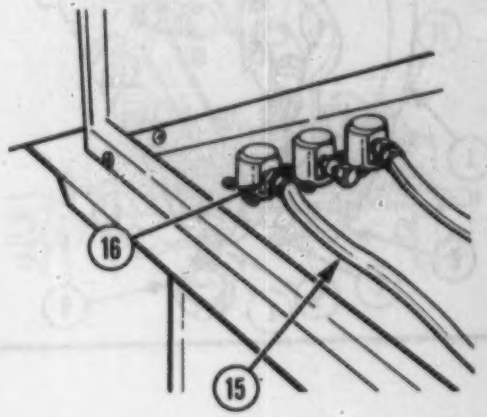
9 DIAL INDICATOR (10) AND ROD (11). Install into holder (6).

10 NUT (8). Tighten.

11 NIPPLE (MS51953-29) (12), SHUTOFF COCK (MS35934-12) (13), AND ELBOW (8-4 010202) (14). Install.

12 HOSE ASSEMBLY -3 (15). Install one end on elbow (14) and the other end on fuel pressure connector (16).





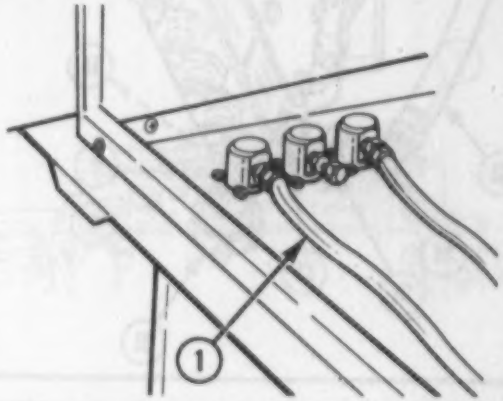
2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

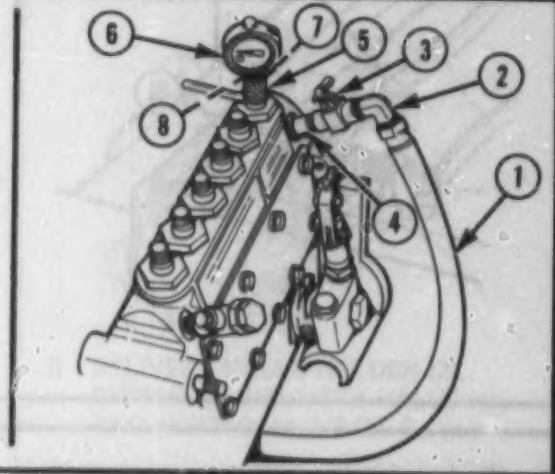
REMOVAL OF HOOKUP FOR INTERNAL TIMING TEST

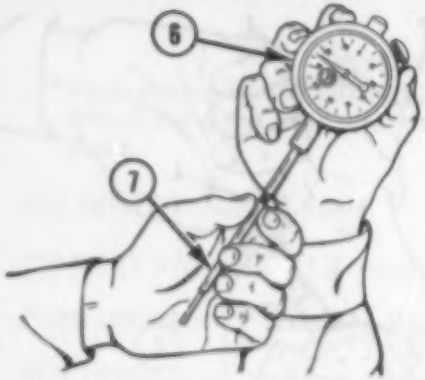
1 HOSE ASSEMBLY -3 (1), ELBOW (2), SHUTOFF COCK (3), AND NIPPLE (4). Remove.

2 NUT (5). Loosen.

3 DIAL INDICATOR (6) AND ROD (7). Remove from holder (8).





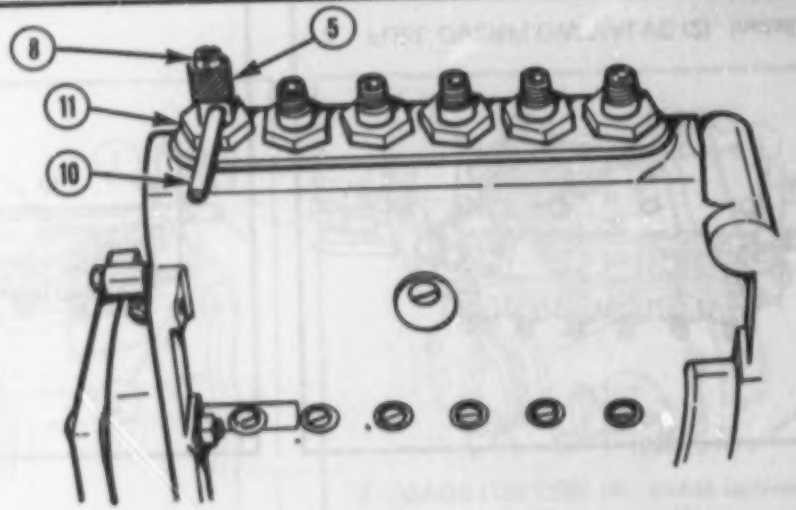


4 ROD (7). Remove from dial indicator (6).

5 TIP (9). Install on dial indicator (6).

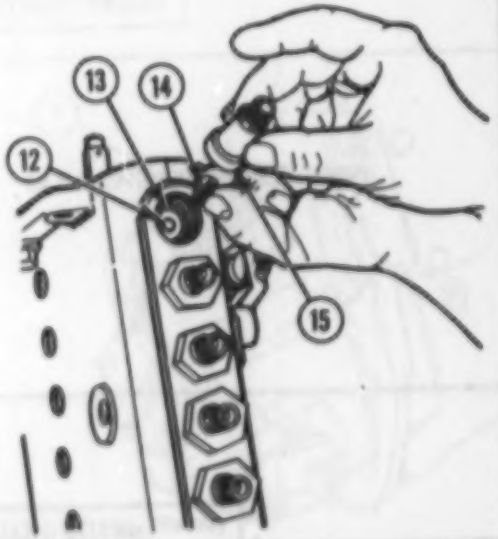
6 NUT (5). Remove.

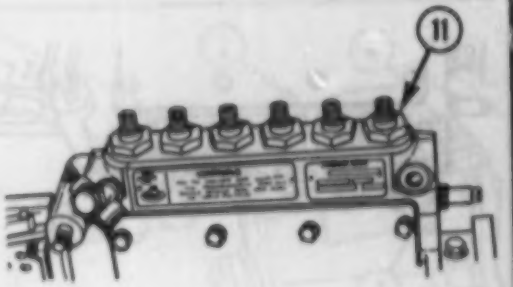
7 TUBE (10), DELIVERY VALVE NUT (11), AND HOLDER (8). Remove.



NOTE
Delivery valve must not be handled with fingers.

8 NEEDLE VALVE (12), DELIVERY VALVE (13), SPRING (14), AND DELIVERY VALVE HOLDER (15). Install.

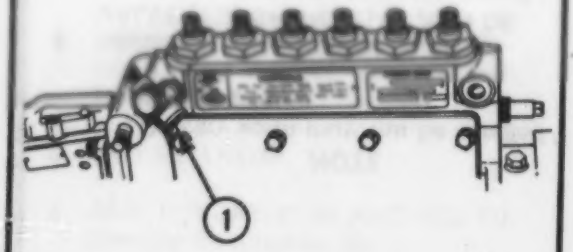




9 DELIVERY VALVE NUT (11). Install.

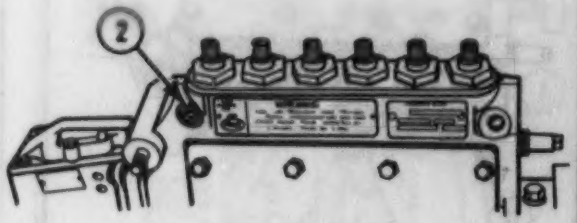
2-13. AMERICAN BOSCH APE-6BB FUEL INJECTOR PUMP (cont)

HOOKUP FOR DELIVERY VALVE SPRING TEST



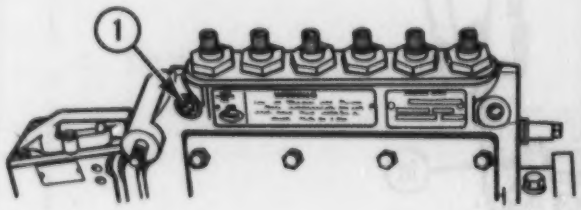
1 FUEL OVERFLOW VALVE (1). Remove.

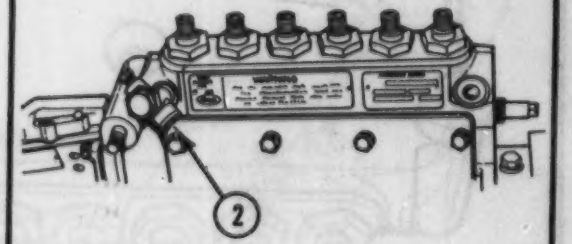
2 PLUG (MS49005-4) (2). Install.



REMOVAL OF HOOKUP FOR DELIVERY VALVE SPRING TEST

1 PLUG (1). Remove.



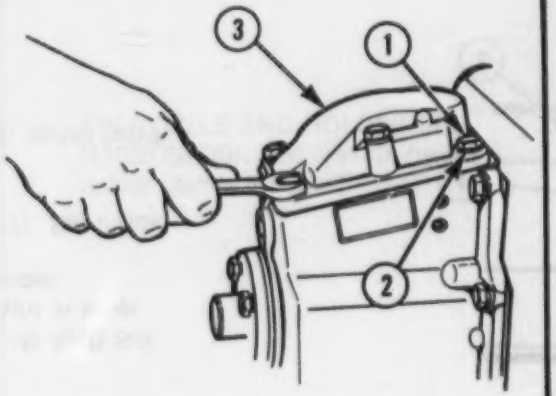


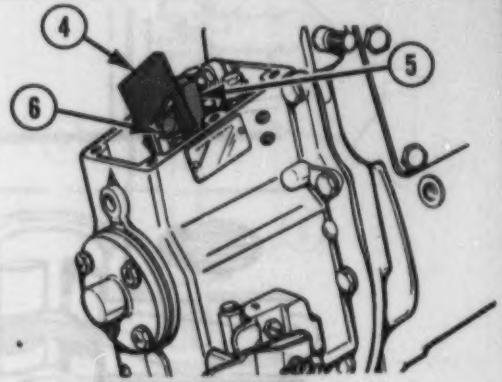
2 FUEL OVERFLOW VALVE (2). Install.

HOOKUP TO TEST GOVERNOR ADJUSTMENT

1 SIX SCREWS (1) AND SIX WASHERS (2). Remove.

2 CAP (3). Remove.

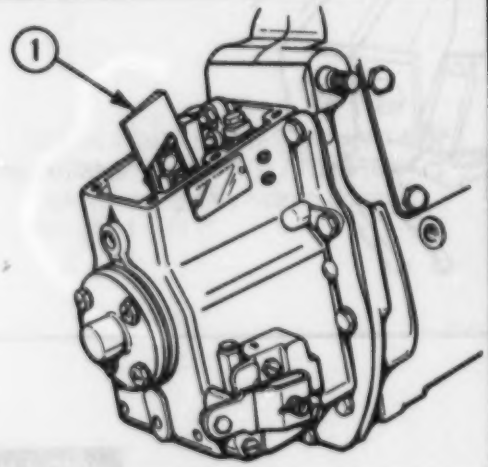


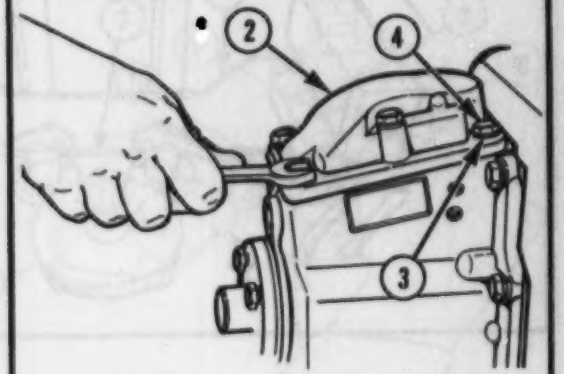


3 GAGE (7551299) (4). Install between stop plate (5) and cam (6).

REMOVAL OF HOOKUP TO TEST GOVERNOR ADJUSTMENT

1 GAGE (1). Remove.



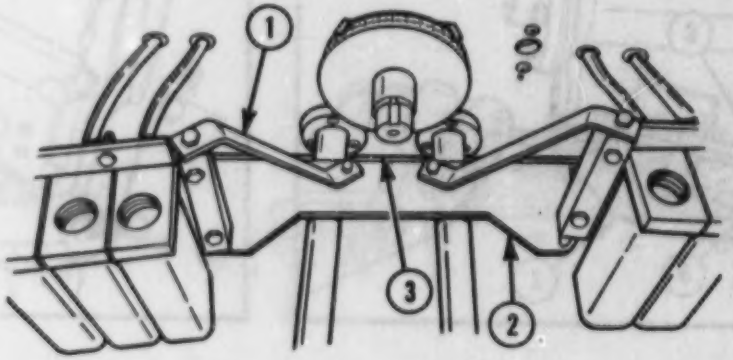


2 CAP (2), SIX WASHERS (3), AND SIX SCREWS (4). Install.

2-14. AMERICAN BOSCH PSB-6A FUEL INJECTOR PUMP

INSTALLATION

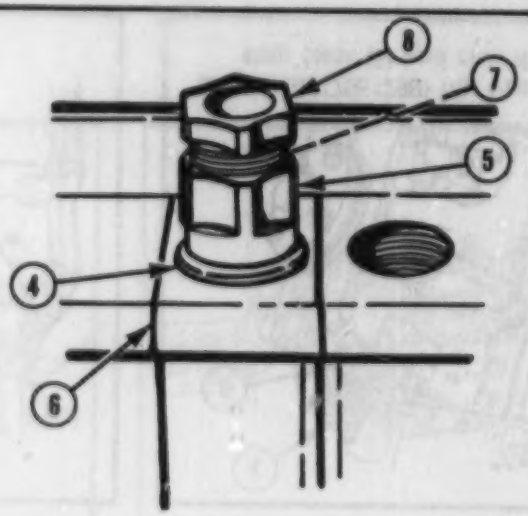
1 ACCUMULATOR MOUNTING ASSEMBLY (1). Position plate (2) 3 in. (7.62 cm) from instrument panel (3).



2 SIX NOZZLE ADAPTER GASKETS (11020348) (4) AND SIX HOLDER BODIES (11020350) (5). Install handtight in inner three accumulator can assemblies (6) on both sides.

3 SIX PREFORMED PACKINGS (MS29513-211) (7). Set inside six holder bodies (5).

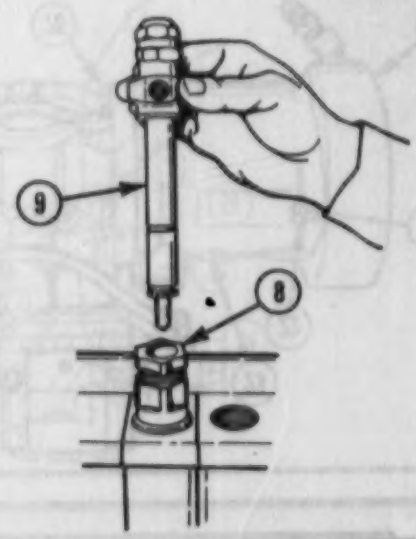
4 SIX NOZZLE HOLDER GLANDS (11020351) (8). Install handtight in six holder bodies (5).



CAUTION

Be careful when installing nozzle and holder sets to avoid damaging the ends. This will prevent fuel from properly circulating.

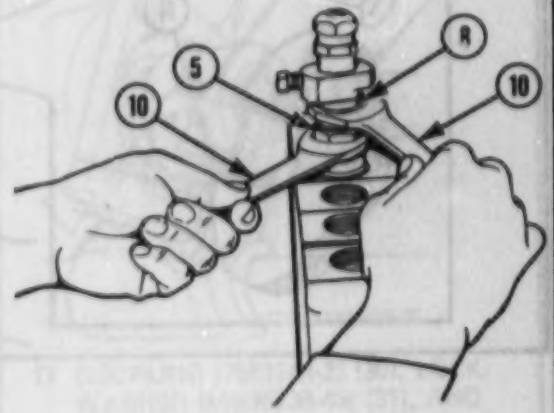
5 SIX NOZZLE AND HOLDER SETS (11020353) (9). Install in six nozzle holder glands (8).



CAUTION

Do not overtighten six holder bodies and six nozzle holder glands as preformed packing will be distorted.

6 SIX HOLDER BODIES (5) AND SIX NOZZLE HOLDER GLANDS (8). Tighten using two nozzle adapter wrenches (10).



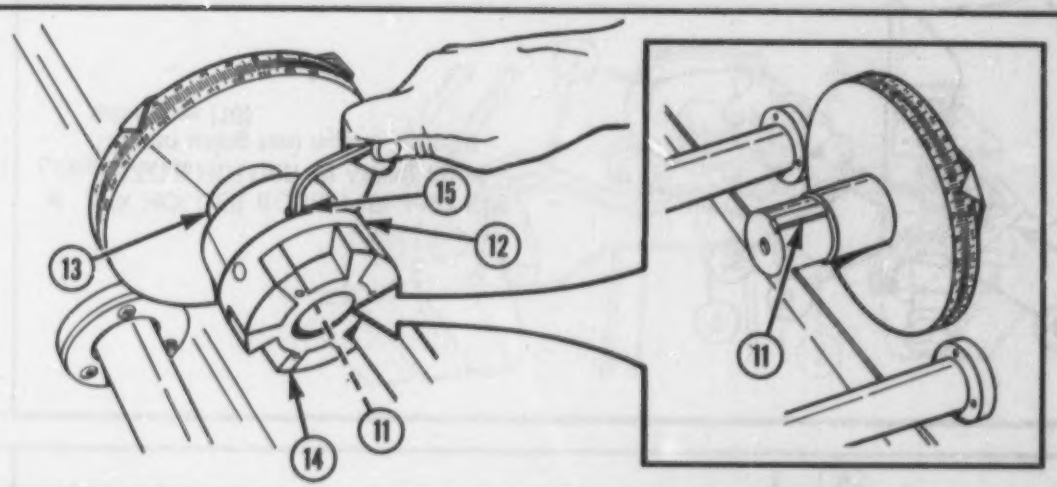
2-14. AMERICAN BOSCH PSB-6A FUEL INJECTOR PUMP (cont)

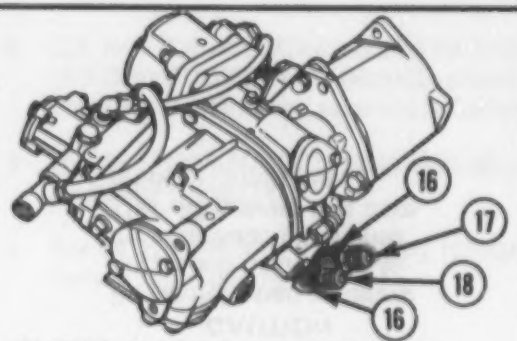
INSTALLATION (cont)

7 KEY (MS20067-271) (11) AND DRIVE COUPLING (7551246) (12). Install on tester shouldered shaft (13).

8 FLEXIBLE COUPLING INSERT (L110S0X) (14). Install on drive coupling (12).

9 SETSCREW (MS51963-85) (15). Tighten.





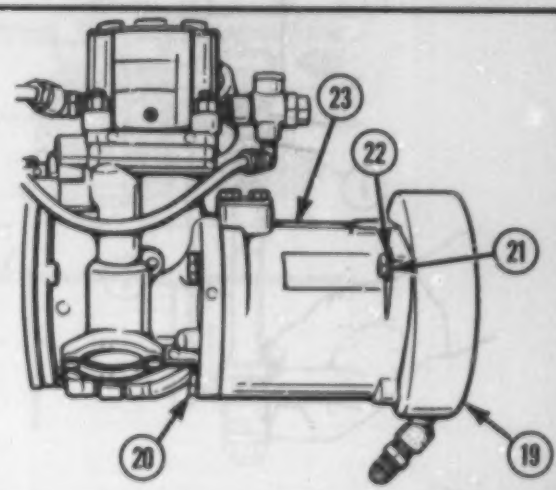
10 TWO ELBOWS (4-4 130339) (16). Install.

11 TWO CONNECTORS (8-4 010102) (17) AND (6-4 010102) (18). Install.

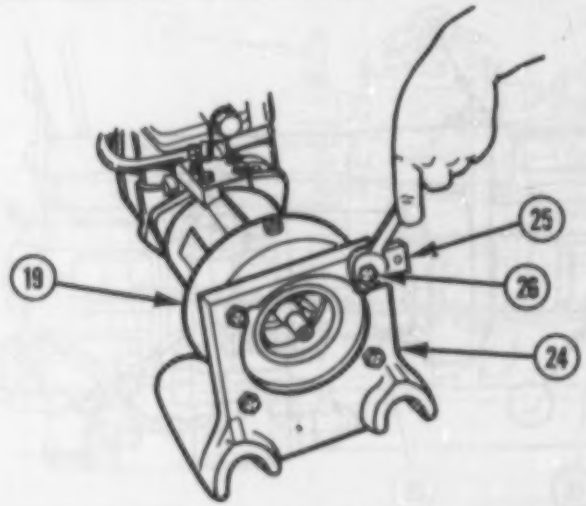
12 ADAPTER RING ASSEMBLY (7551251) (19), PUMP CAPSCREW (20), TWO WASHERS (MS27183-14) (21), AND TWO CAPSCREWS (MS90725-60) (22).

a. Install on fuel injector pump (23).

b. Tighten capscrews.



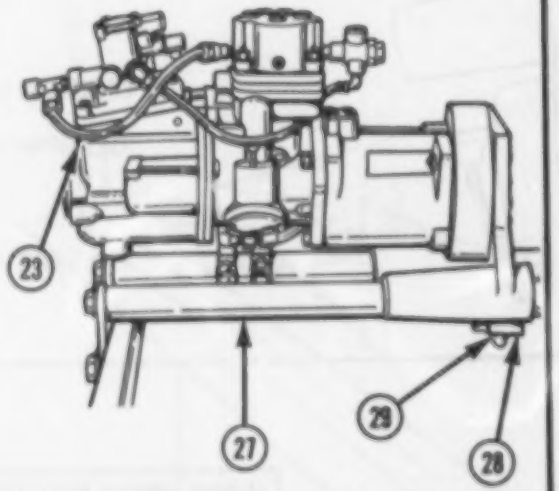
13 ADAPTER BRACKET (24), RETAINER (7551250) (25), AND FOUR CAPSCREWS (MS90725-60) (26). Install on adapter ring assembly (19).

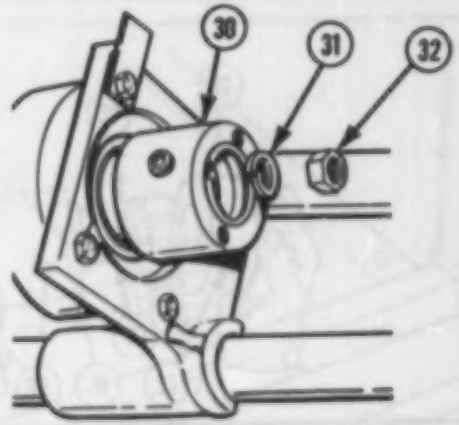


14 FUEL INJECTOR PUMP (23). Place on back of mounting rails (27).

15 CLAMP BAR (11020262) (28) AND HAND KNOB ASSEMBLY (11020266) (29). Position under mounting rails.

16 HAND KNOB ASSEMBLY (29). Tighten.





17 COUPLING (7551244-2) (30), LOCKWASHER (MS35338-49) (31), AND HEX NUT (MS51968-17) (32). Install on fuel injector pump shaft.

2-14. AMERICAN BOSCH PSB-6A FUEL INJECTOR PUMP (cont)

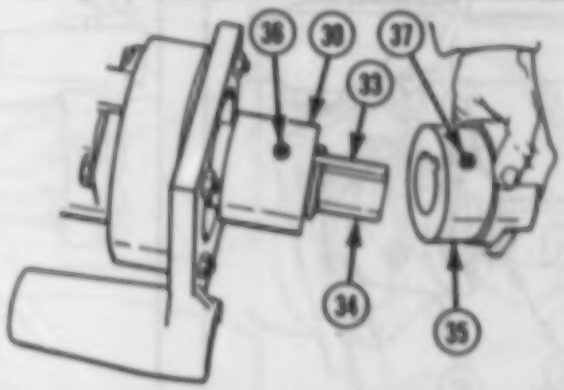
INSTALLATION (cont)

18 KEY (MS20066-410) (33). Install in shaft (7551245) (34).

19 SHAFT (34). Install in coupling (30).

20 DRIVEN COUPLING (7551229) (35). Install on shaft (34).

21 TWO SETSCREWS (MS51963-103) (36) AND (MS51963-85) (37). Tighten.



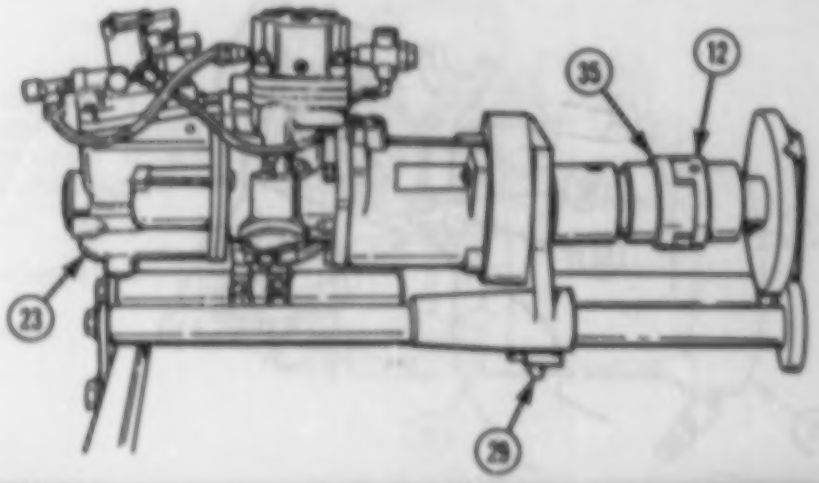
22 HAND KNOB ASSEMBLY (29). Loosen.

23 FUEL INJECTOR PUMP (23).

a. Slide forward.

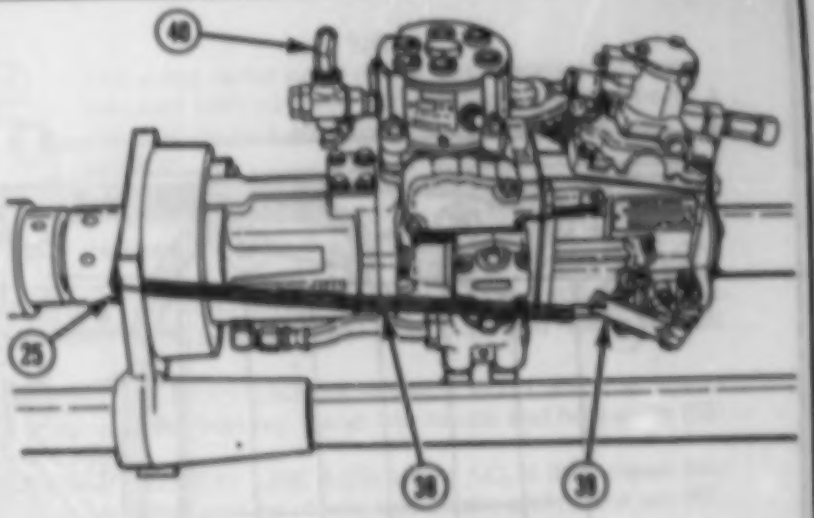
b. Engage driven coupling (35) with drive coupling (12) making sure there is a 1/16-in. (0.159-cm) gap between.

24 HAND KNOB ASSEMBLY (29). Tighten.

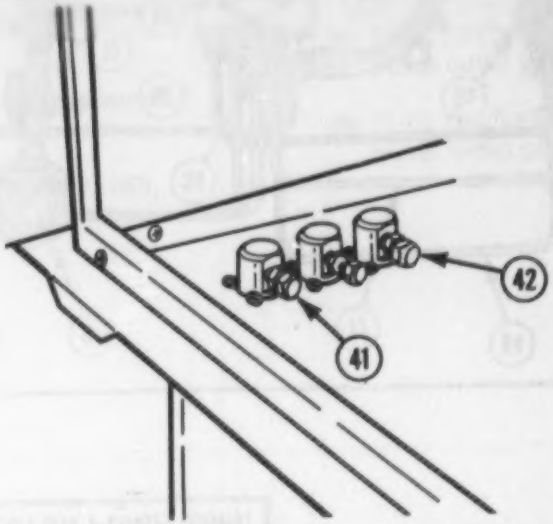


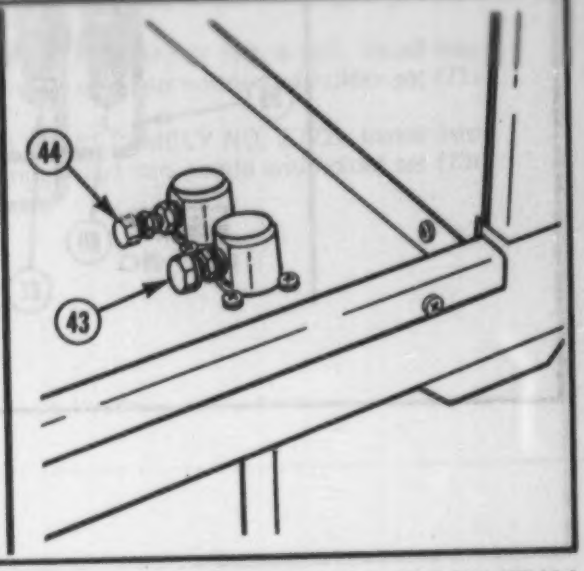
26 THROTTLE SPRING (11020442) (38). Install one end on retainer (25) and other end on pump throttle lever (39).

28 ELBOW (8-4 010202) (40). Install.



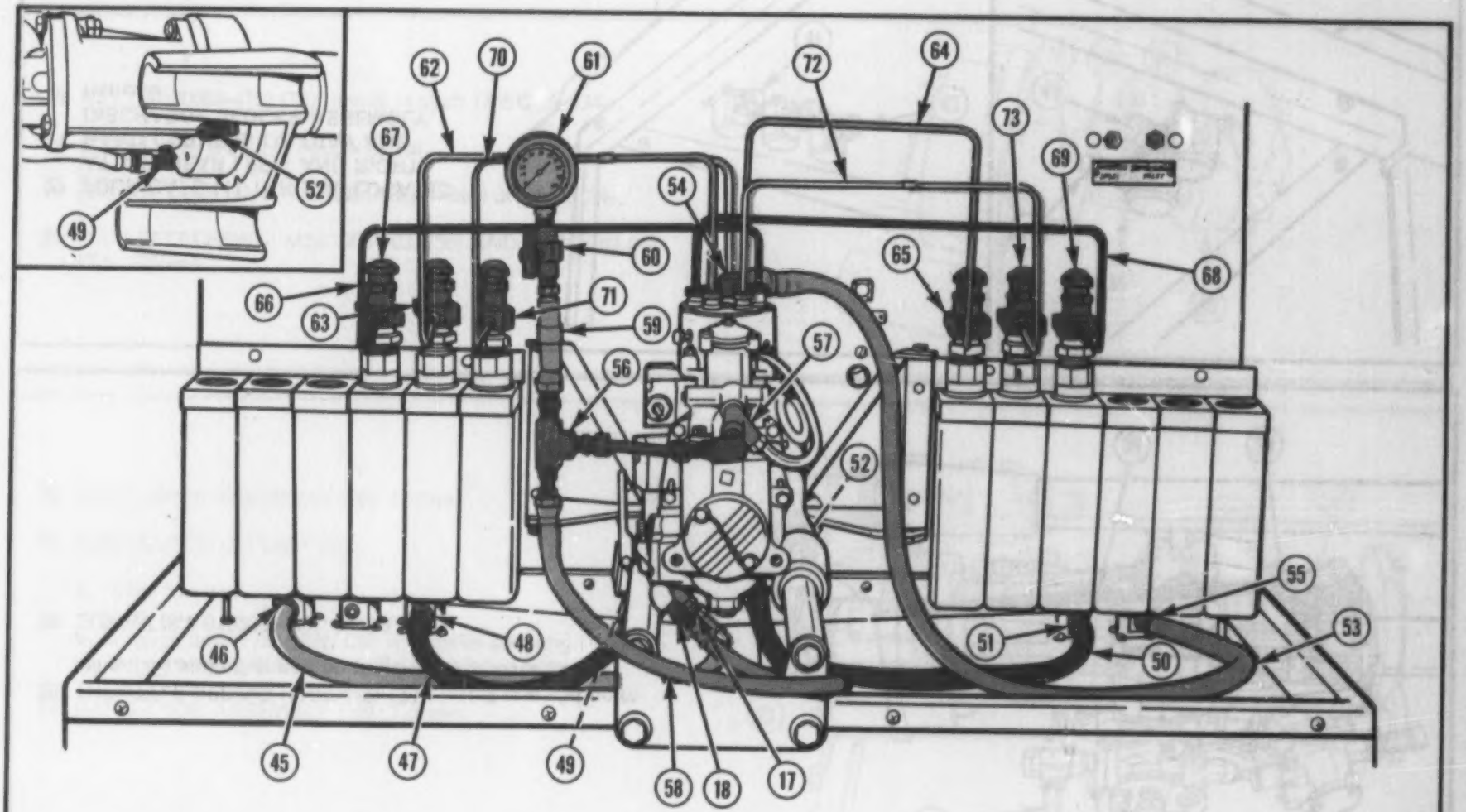
27 FOUR CAPS (41 THRU 44) LOCATED AT TOP REAR LEFT- AND RIGHT-HAND CORNERS OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.





2-14. AMERICAN BOSCH PSB-6A FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 12020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash numbers.

28 HOSE ASSEMBLY -2 (45). Install one end on fuel pressure connector (46) and the other end on connector (17).

29 HOSE ASSEMBLY -1 (47). Install one end on lube oil pressure connector (48) and other end on connector (49) on bottom of fuel injector pump.

30 HOSE ASSEMBLY -15 (50). Install one end on lube oil return connector (51) and other end on connector (52) on adapter ring assembly.

31 HOSE ASSEMBLY -3 (53). Install one end on elbow (54) and other end on fuel return connector (55).

32 ADAPTER ASSEMBLY (56). Install on compensator inlet (57).

33 HOSE ASSEMBLY -6 (58). Install one end on adapter assembly (7551368) (56) and other end on connector (18).

34 HOSE (7550081-9) (59), SHUTOFF COCK (MS35934-2) (60), AND PRESSURE GAGE (7551253) (61). Install.

NOTE

The pump outlet ports of the fuel injector pump are stamped with numbers that correspond to numbers stamped on tags attached to fuel delivery line assemblies.

Reposition nozzle and holder sets as necessary to facilitate installing the fuel delivery line assemblies.

35 FUEL DELIVERY LINE ASSEMBLY NO. 5 (62). Install into pump outlet port no. 5 and into nozzle and holder set (63).

36 FUEL DELIVERY LINE ASSEMBLY NO. 1 (64). Install into pump outlet port no. 1 and into nozzle and holder set (65).

37 FUEL DELIVERY LINE ASSEMBLY NO. 4 (66). Install into pump outlet port no. 4 and into nozzle and holder set (67).

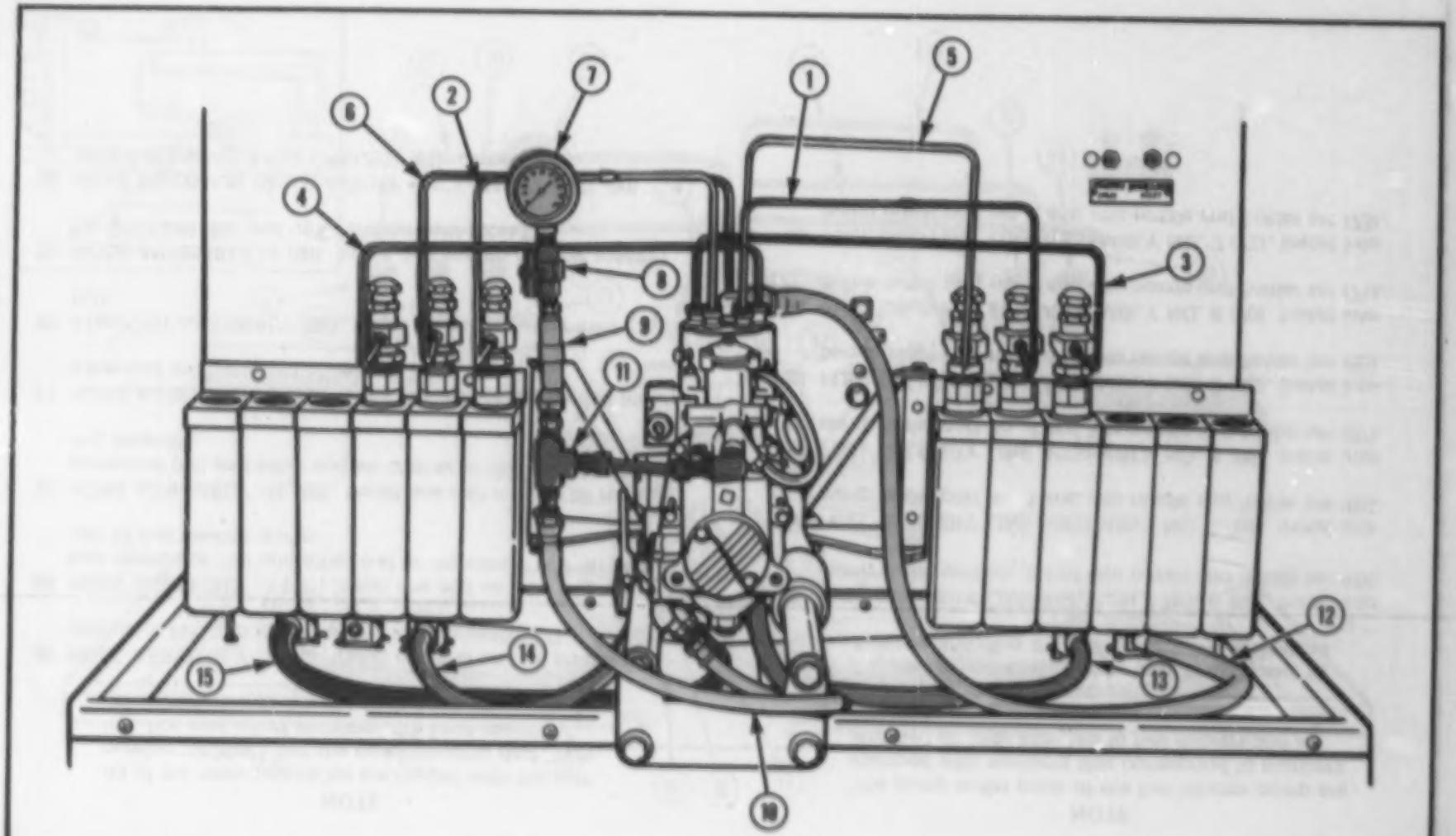
38 FUEL DELIVERY LINE ASSEMBLY NO. 3 (68). Install into pump outlet port no. 3 and into nozzle and holder set (69).

39 FUEL DELIVERY LINE ASSEMBLY NO. 6 (70). Install into pump outlet port no. 6 and into nozzle and holder set (71).

40 FUEL DELIVERY LINE ASSEMBLY NO. 2 (72). Install into pump outlet port no. 2 and into nozzle and holder set (73).

2-14. AMERICAN BOSCH PSB-6A FUEL INJECTOR PUMP (cont)

REMOVAL



1 SIX FUEL DELIVERY LINE ASSEMBLIES (1 THRU 6). Remove.

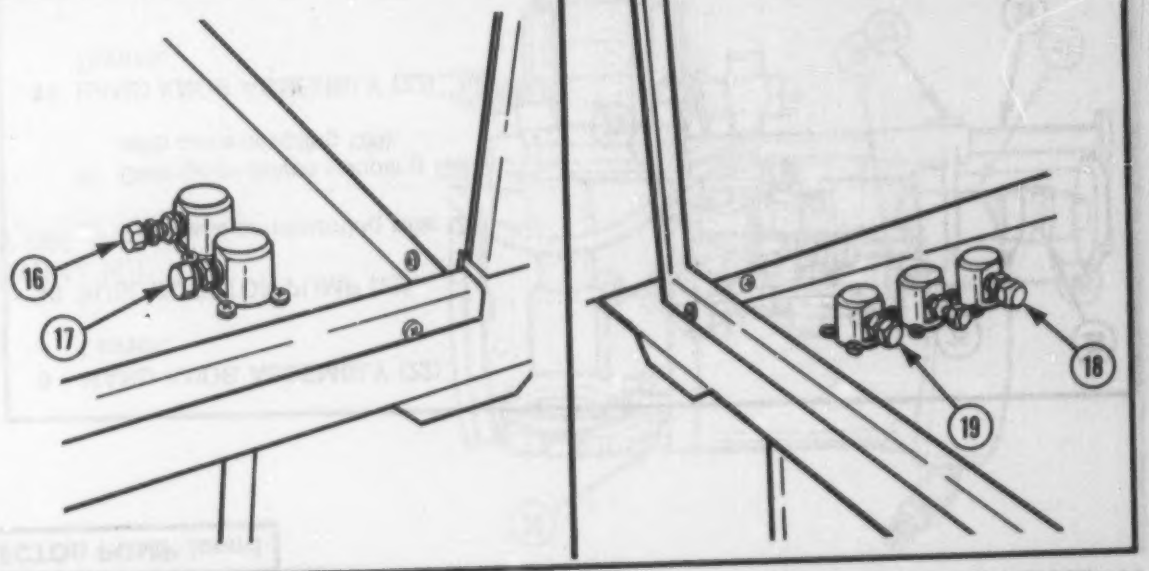
2 PRESSURE GAGE (7), SHUTOFF COCK (8), AND HOSE (9). Remove.

3 HOSE ASSEMBLY (10). Remove.

4 ADAPTER ASSEMBLY (11). Remove.

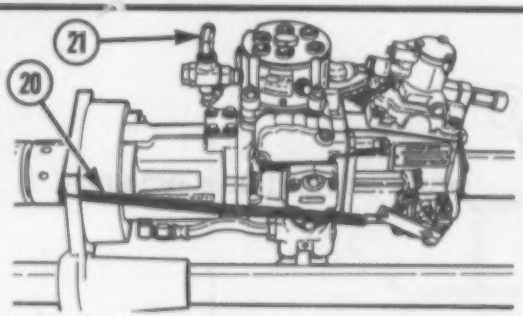
5 FOUR HOSE ASSEMBLIES (12 THRU 15). Remove.

6 FOUR CAPS (16 THRU 19). Install.



2-14. AMERICAN BOSCH PSB-6A FUEL INJECTOR PUMP (cont)

REMOVAL (cont)



7 THROTTLE SPRING (20). Remove.

8 ELBOW (21). Remove.

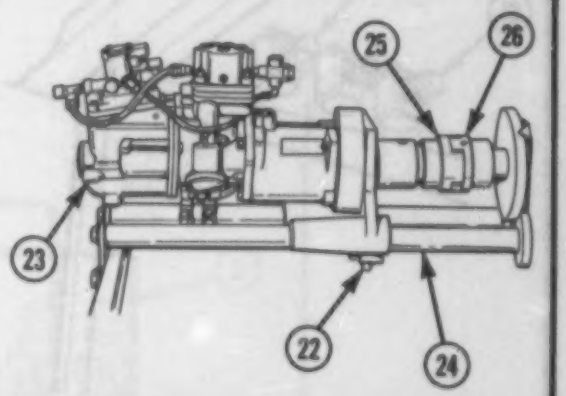
9 HAND KNOB ASSEMBLY (22). Loosen.

10 FUEL INJECTOR PUMP (23).

a. Pull back on mounting rails (24).

b. Disengage driven coupling (25) with drive coupling (26).

11 HAND KNOB ASSEMBLY (22). Tighten.

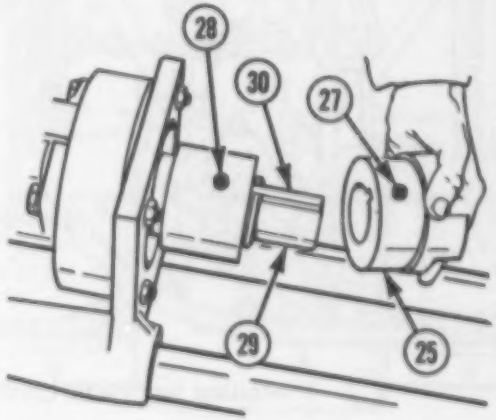


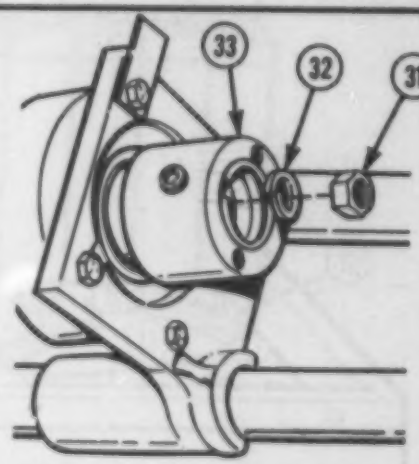
12 TWO SETSCREWS (27 AND 28). Loosen.

13 DRIVEN COUPLING (25). Remove.

14 SHAFT (29). Remove.

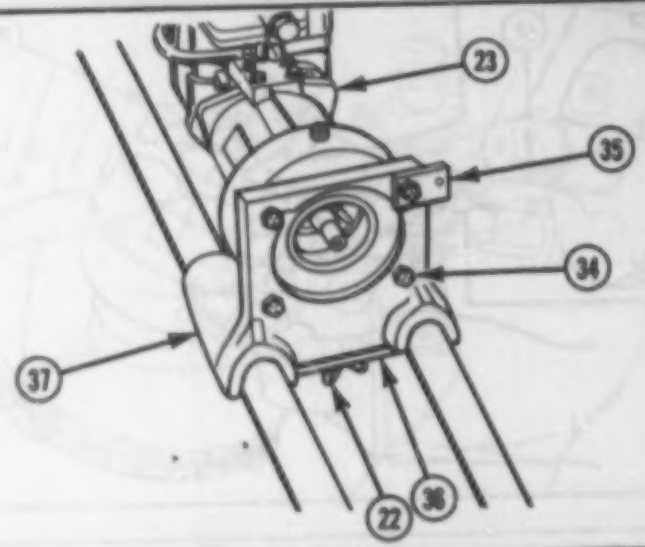
15 KEY (30). Remove.



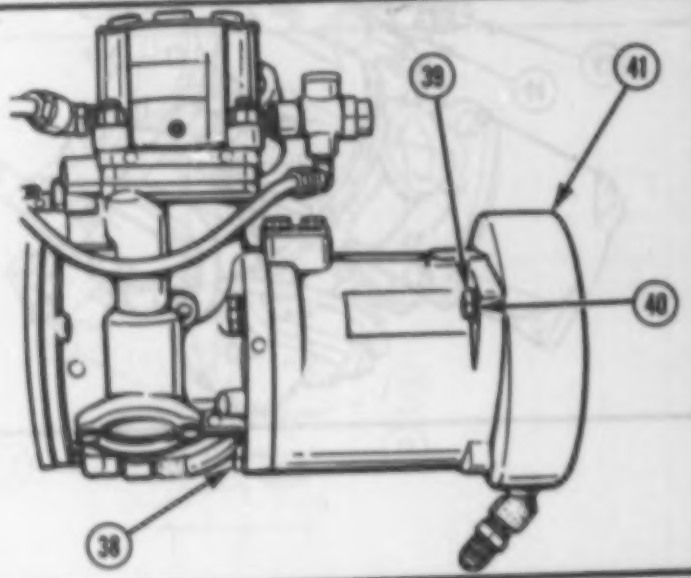


16 HEX NUT (31), LOCKWASHER (32), AND COUPLING (33). Remove.

17 FOUR CAPSCREWS (34), RETAINER (35), HAND KNOB ASSEMBLY (22), CLAMP BAR (36), ADAPTER BRACKET (37), AND FUEL INJECTOR PUMP (23). Remove.



18 PUMP CAPSCREW (38), TWO CAPSCREWS (39), TWO WASHERS (40), AND ADAPTER RING ASSEMBLY (41). Remove.



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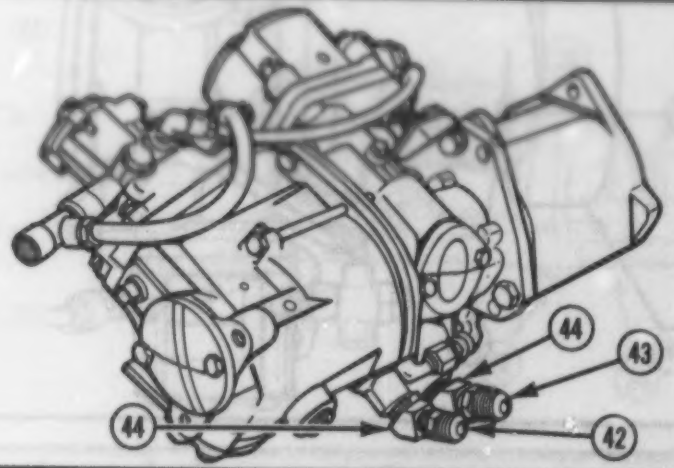
2-14. AMERICAN BOSCH PSB-6A FUEL INJECTOR PUMP (cont)

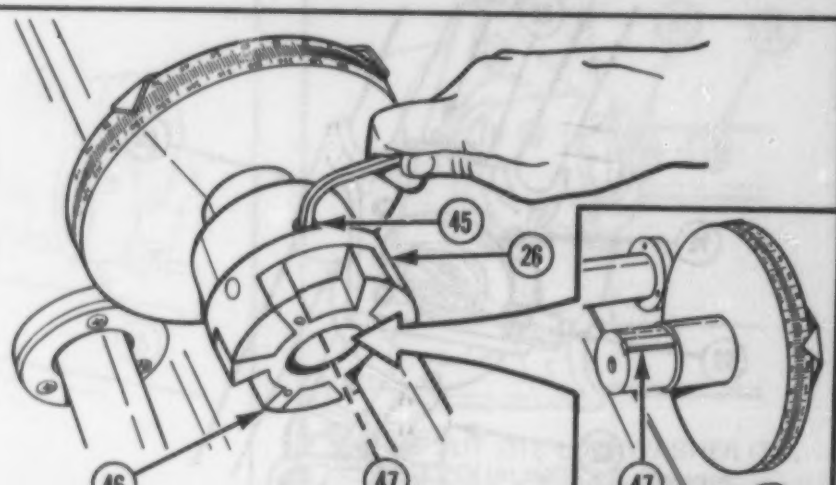
REMOVAL (cont)

19 TWO CONNECTORS (42 AND 43) AND TWO ELBOWS (44). Remove.

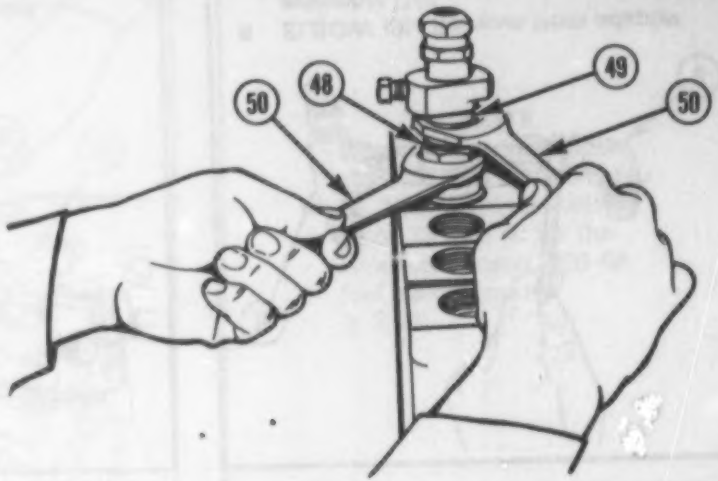


20 SETSCREW (45). Loosen.

21 FLEXIBLE COUPLING INSERT (46), DRIVE COUPLING (26), AND KEY (47). Remove.

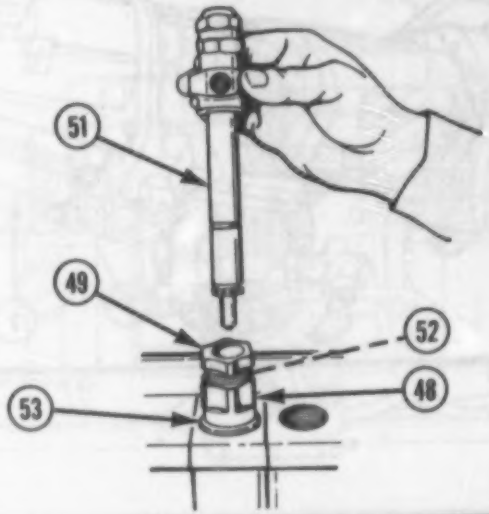


22 SIX HOLDER BODIES (48) AND SIX NOZZLE HOLDER GLANDS (49). Loosen using two nozzle adapter wrenches (50).



23 SIX NOZZLE AND HOLDER SETS (51). Remove.

24 SIX NOZZLE HOLDER GLANDS (49), SIX PREFORMED PACKINGS (52), SIX HOLDER BODIES (48), AND SIX NOZZLE ADAPTER GASKETS (53). Remove.



2-15. AMERICAN BOSCH PSB-6 FUEL INJECTOR PUMP

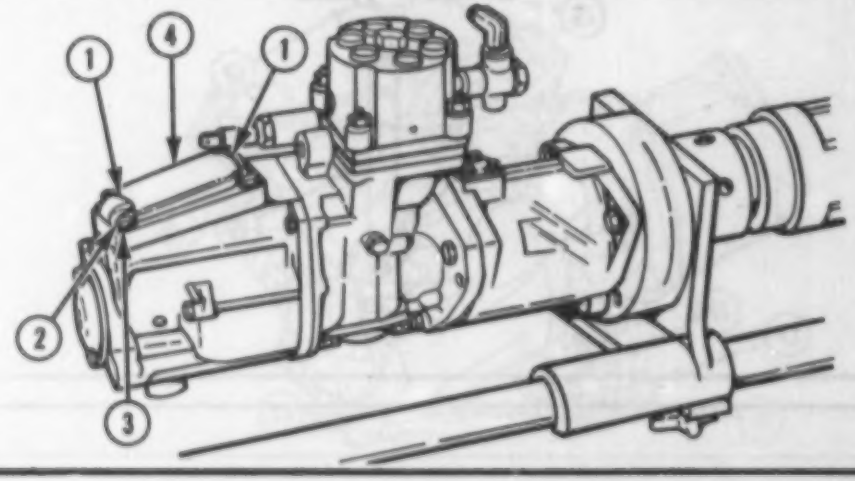
INSTALLATION

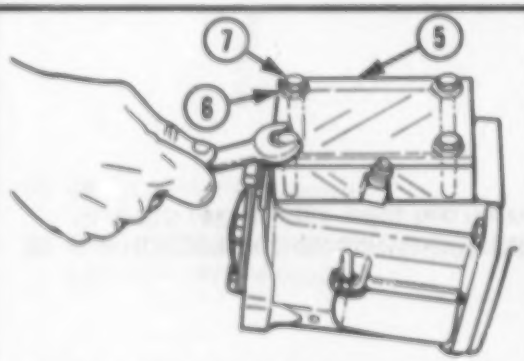
NOTE
First perform installation steps 1 thru 27 for the American Bosch PSB-6A fuel injector pump (p 2-46); then continue with the following steps.

1 TWO LOCK WIRES (1). Remove.

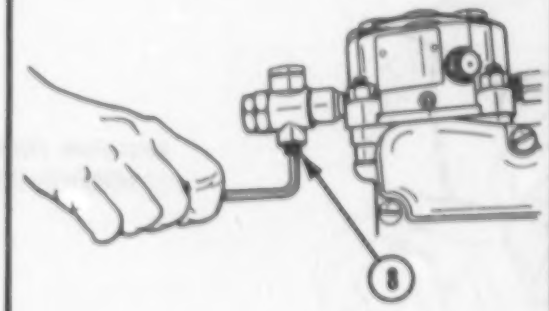
2 FOUR SCREWS (2) AND FOUR WASHERS (3). Remove.

3 CAP (4). Remove.

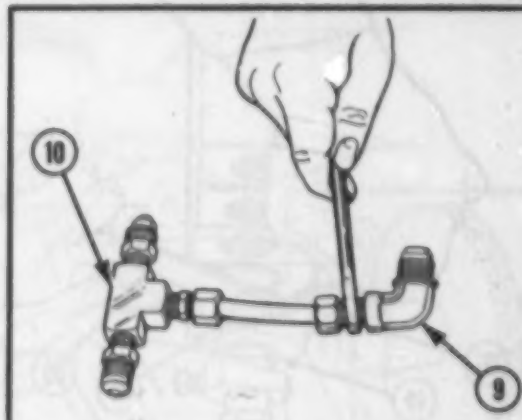




4 CAP ASSEMBLY (7551241) (5), FOUR WASHERS (MS27183-10) (6), AND FOUR SCREWS (MS90725-13) (7). Install.



5 PLUG (MS49005-2) (8). Install.



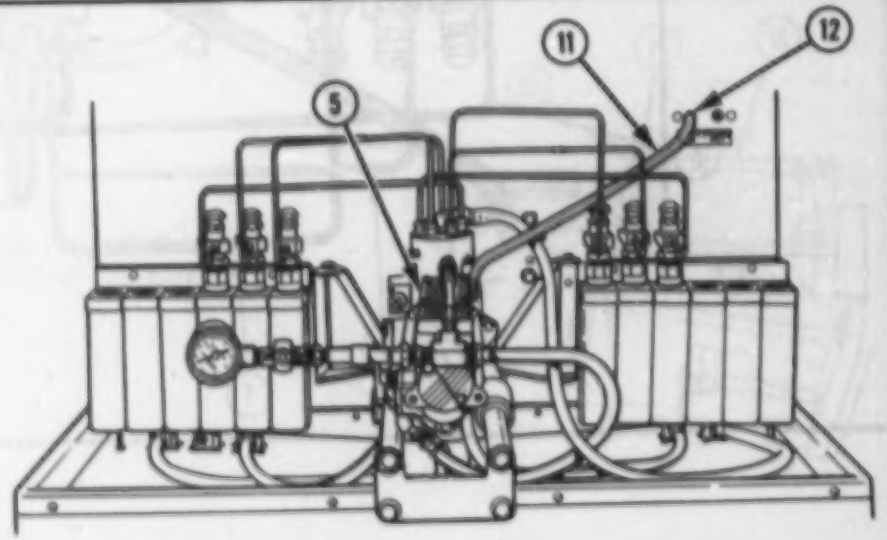
6 ELBOW (9). Remove from adapter assembly (10).

7 ADAPTER ASSEMBLY (10). Install.

NOTE

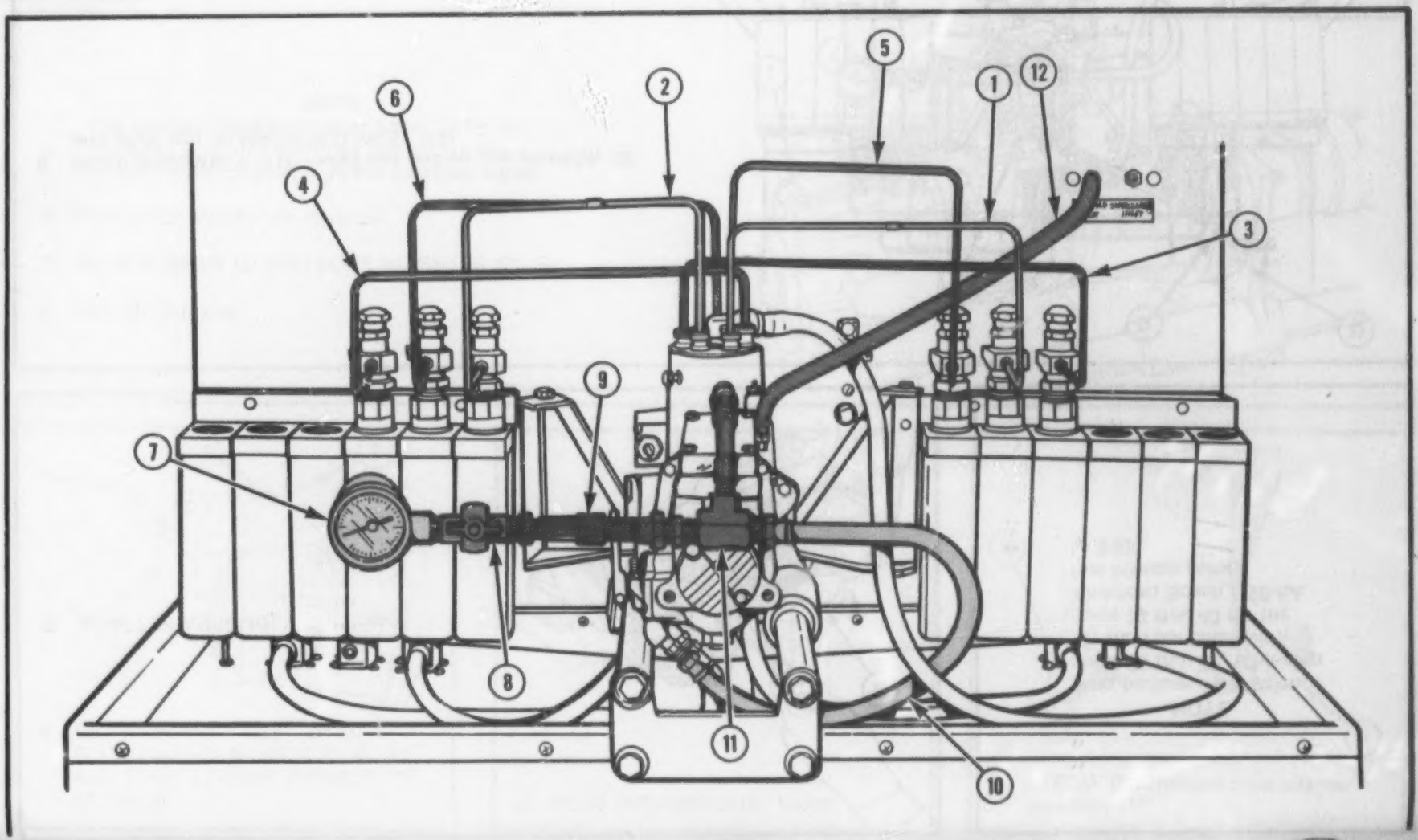
Next perform installation steps 28 thru 31, omit step 32, then continue with steps 33 thru 40 for the American Bosch PSB-6A fuel injector pump (p 2-53).

8 HOSE ASSEMBLY (11). Install one end on cap assembly (5) and other end on MANIFOLD INLET (12).



2-15. AMERICAN BOSCH PSB-6 FUEL INJECTOR PUMP (cont)

REMOVAL



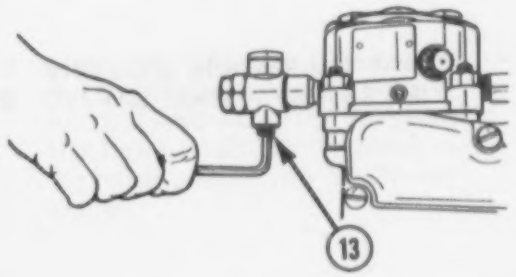
1 SIX FUEL DELIVERY LINE ASSEMBLIES (1 THRU 6). Remove.

2 PRESSURE GAGE (7), SHUTOFF COCK (8), AND HOSE (9). Remove..

3 HOSE ASSEMBLY (10). Remove.

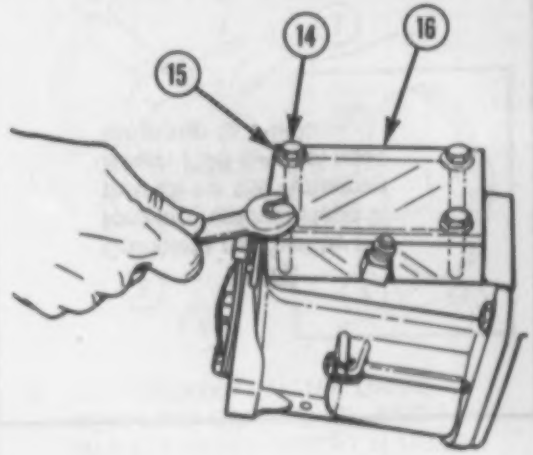
4 ADAPTER ASSEMBLY (11). Remove.

5 HOSE ASSEMBLY (12). Remove.



6 PLUG (13). Remove.

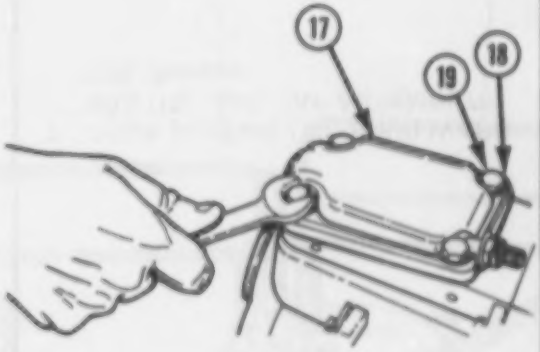
7 FOUR SCREWS (14), FOUR WASHERS (15), AND CAP ASSEMBLY (16). Remove.



2-15. AMERICAN BOSCH PSB-6 FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

8 CAP (17), FOUR WASHERS (18), AND FOUR SCREWS (19). Install.

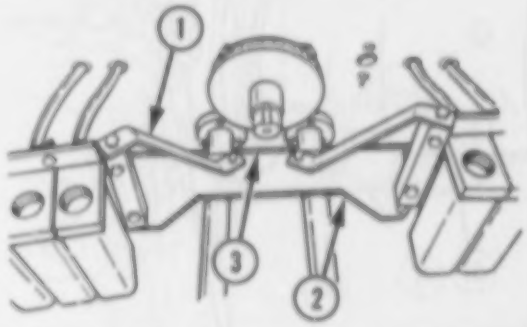


NOTE

Complete removal by performing removal steps 5 thru 25 for the American Bosch PSB-6A fuel injector pump (p 2-54).

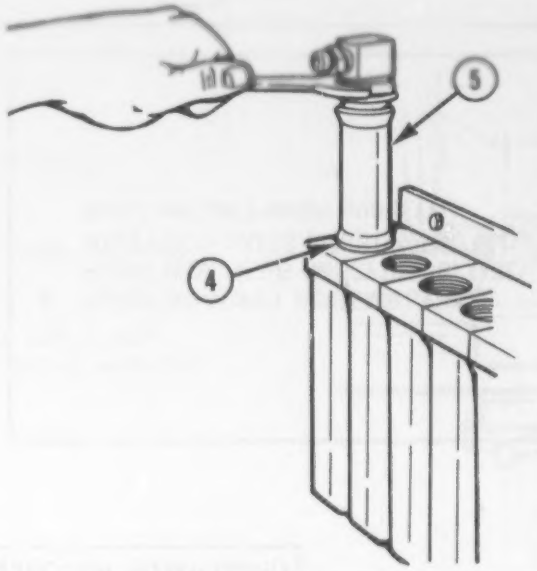
INSTALLATION

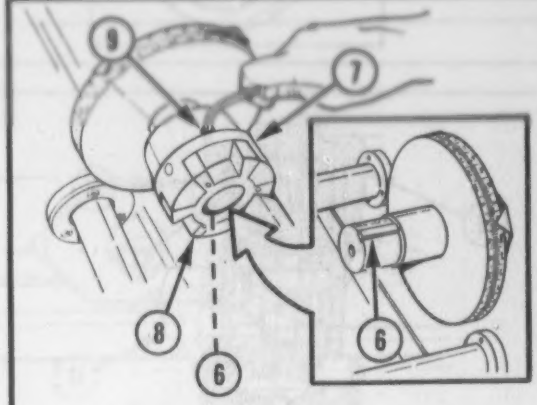
1 ACCUMULATOR MOUNTING ASSEMBLY (1). Position plate (2) 2 in. (5.08 cm) from and parallel to instrument panel (3).



CAUTION
Be careful when installing nozzle and adapter assembly holders to avoid damaging the ends. This will prevent fuel from properly circulating.

2 TWELVE NOZZLE ADAPTER GASKETS (11020348) (4) AND TWELVE NOZZLE AND ADAPTER ASSEMBLY HOLDERS (11020352) (5). Install using nozzle adapter wrench. Do not tighten.



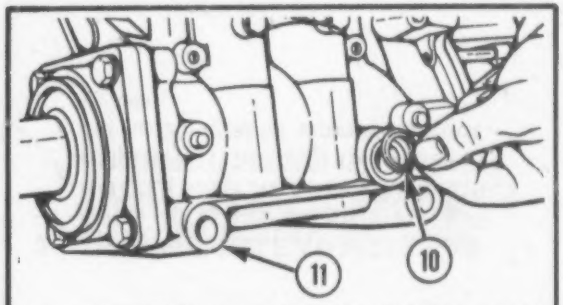


3 KEY (MS20067-271) (6), DRIVE COUPLING (7551246) (7), AND FLEXIBLE COUPLING INSERT (L110S0X) (8). Install.

4 SETSCREW (9). Tighten.

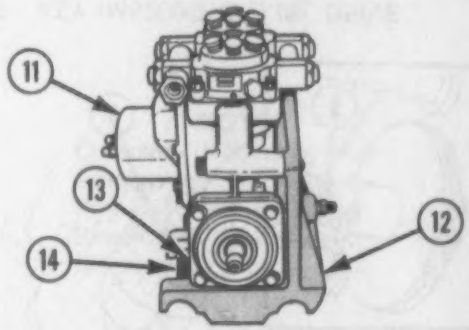
2-16. AMERICAN BOSCH PSB-12BT FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



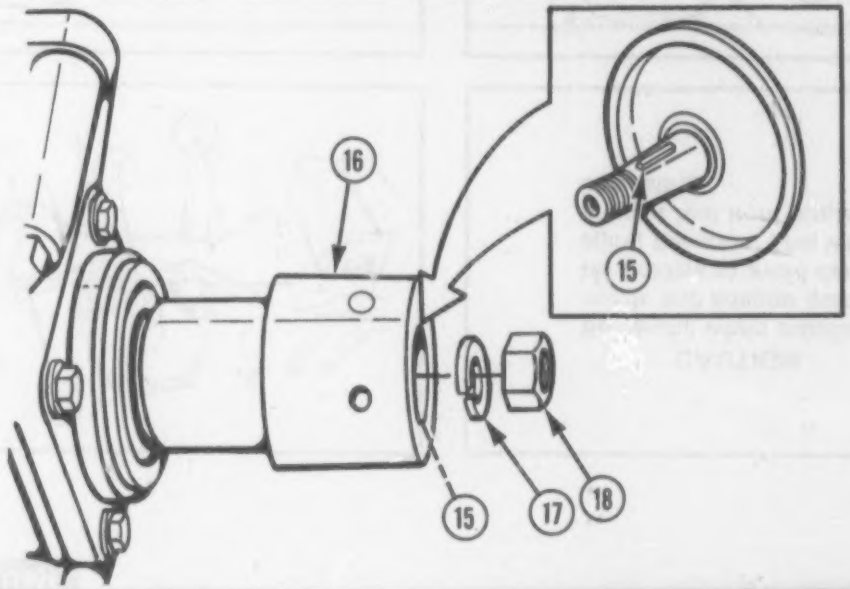
5 PREFORMED PACKING (MS28775-210) (10). Install on fuel injector pump (11).

6 PUMP BRACKET ASSEMBLY (12), FOUR WASHERS (MS27183-18) (13), AND FOUR NUTS (MS51967-14) (14). Install on fuel injector pump (11).



7 WOODRUFF KEY (MS35756-12) (15) AND COUPLING (7551244-1) (16). Install on fuel injector pump shaft.

8 LOCKWASHER (MS35338-51) (17) AND HUB NUT (7542335) (18). Install and tighten.

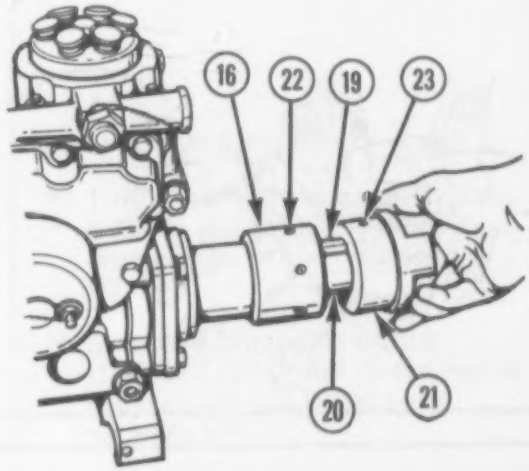


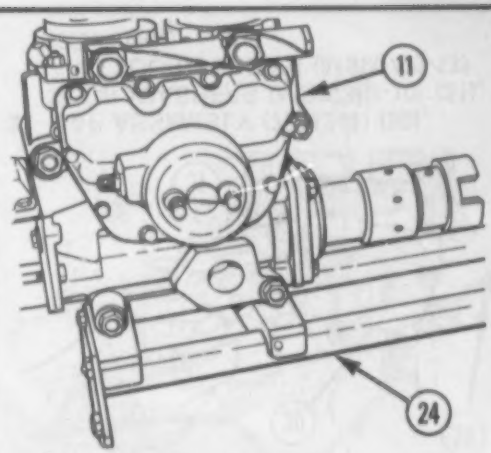
9 KEY (MS20066-410) (19). Install on shaft (7551245) (20).

10 SHAFT (20). Install in coupling (16).

11 DRIVEN COUPLING (7551229) (21). Install on shaft (20).

12 TWO SETSCREWS (MS51963-85) (22 AND 23). Tighten.





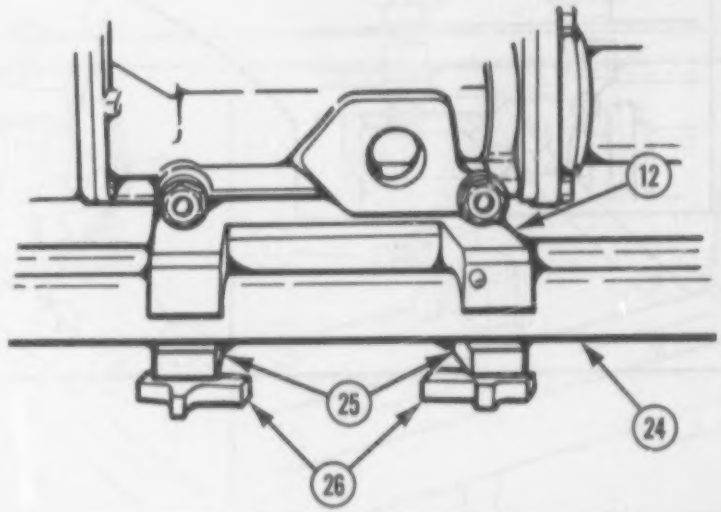
13 FUEL INJECTOR PUMP (11). Place on mounting rails (24) at the back.

NOTE

Holes in clamp bars must aline with pins in pump bracket assembly.

14 TWO CLAMP BARS (11020262) (25). Install under mounting rails (24).

15 TWO HAND KNOB ASSEMBLIES (11020266) (26). Install through two clamp bars (25) and into pump bracket assembly (12).



2-16. AMERICAN BOSCH PSB-12BT FUEL INJECTOR PUMP (cont)

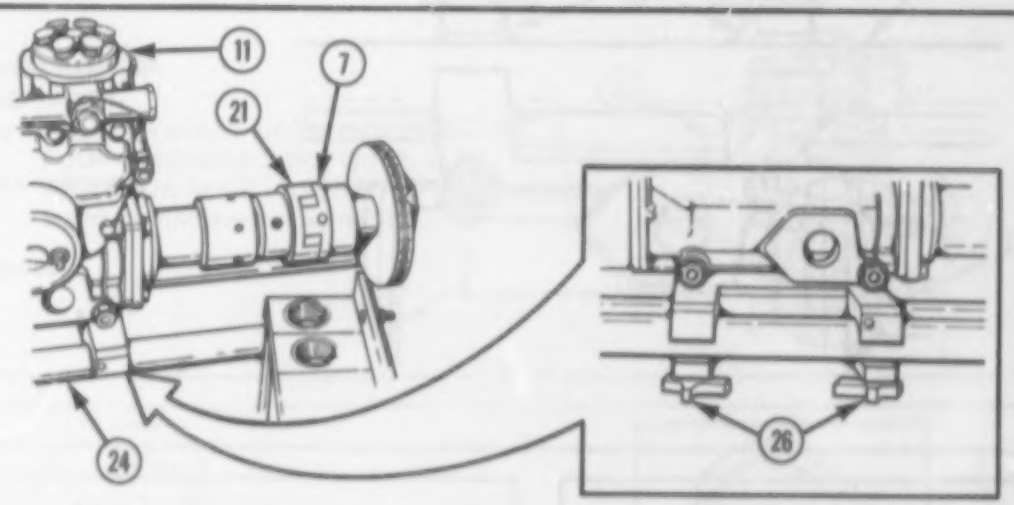
INSTALLATION (cont)

16 TWO HAND KNOB ASSEMBLIES (26). Loosen slightly.

17 FUEL INJECTOR PUMP (11).

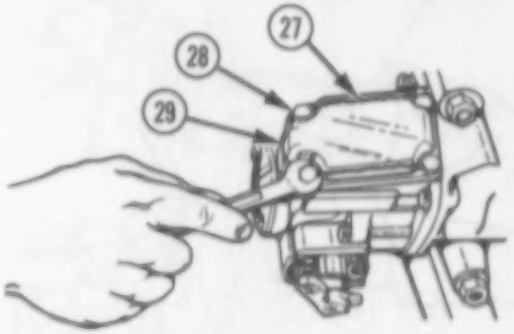
- **a.** Slide forward on mounting rails (24).
- **b.** Engage driven coupling (21) with drive coupling (7) leaving a 1/16-in. (0.159-cm) gap.

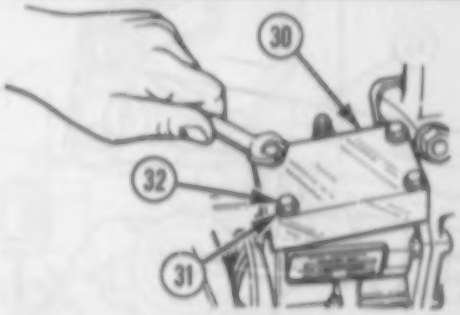
18 TWO HAND KNOB ASSEMBLIES (26). Tighten.



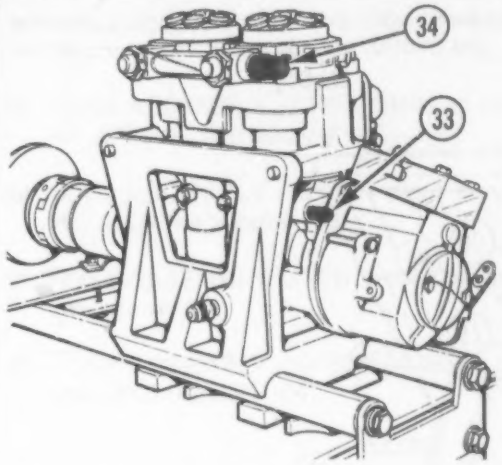
19 TWO LOCK WIRES (27). Remove.

20 FOUR SCREWS (28) AND CAP (29). Remove from fuel injector pump.





21 CAP ASSEMBLY (7551241) (30), FOUR WASHERS (MS27183-10) (31), AND FOUR SCREWS (MS90725-13) (32). Install.



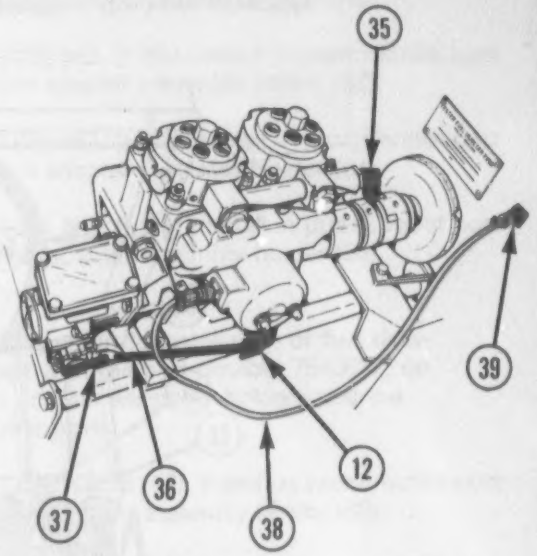
22 TUBE ADAPTER (MS39158-3) (33). Install.

23 TUBE ADAPTER (MS39158-7) (34). Install.

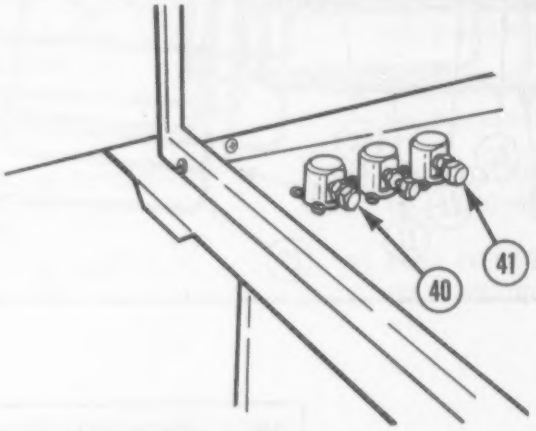
24 ELBOW (8-6 010202) (35). Install.

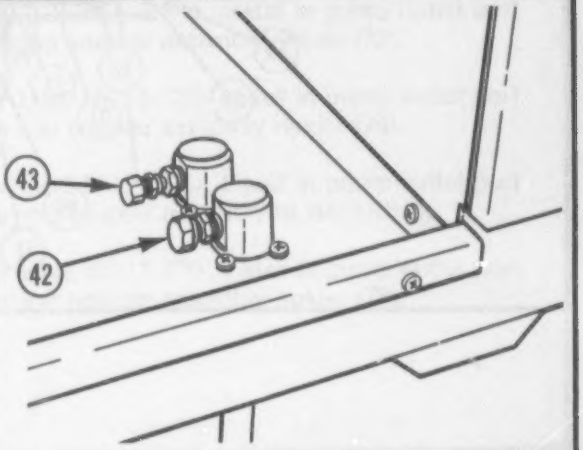
25 THROTTLE SPRING (11020442) (36). Install on lever assembly (37) and on the pin of pump bracket assembly (12).

26 SHUTOFF SOLENOID CABLE (11020377) (38). Install on fuel injector pump and 24 VOLTS DC outlet assembly (39).



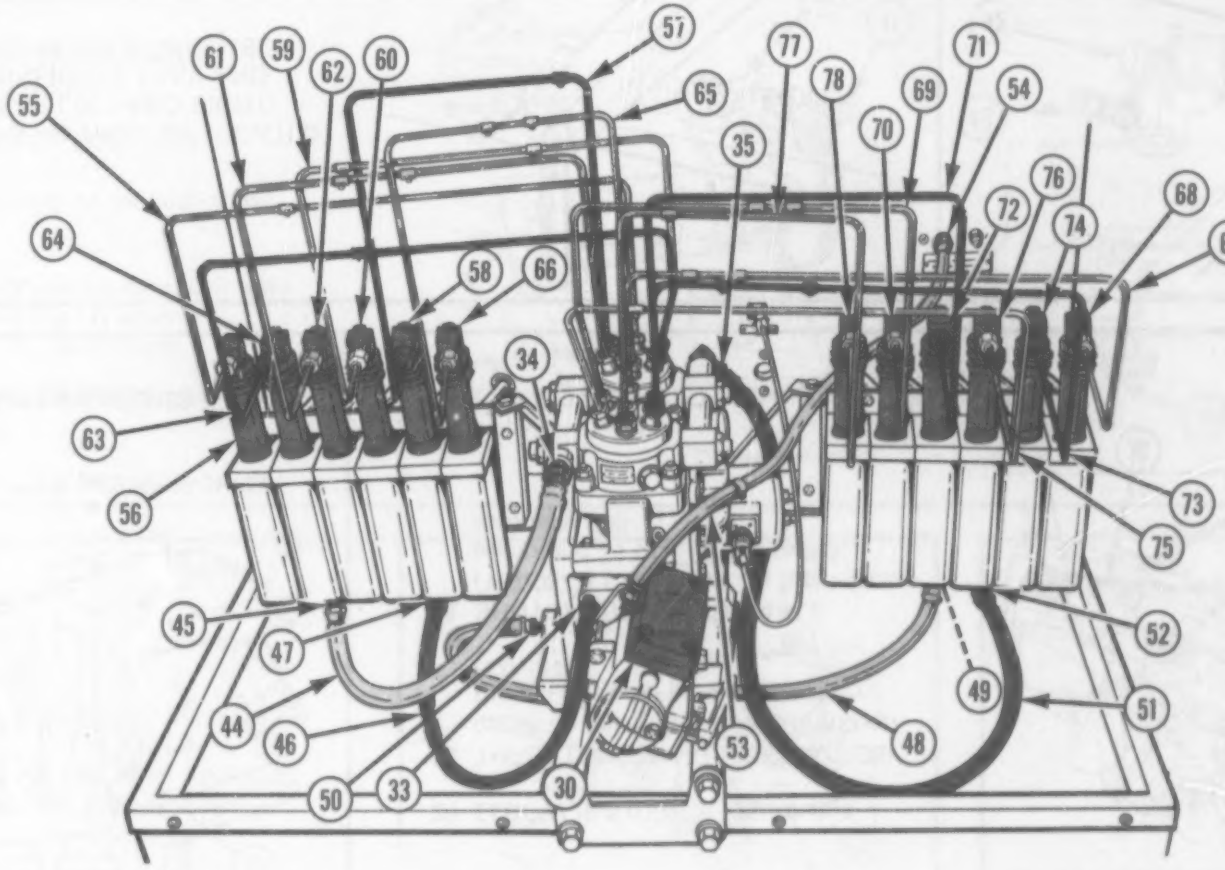
27 FOUR CAPS (40 THRU 43) LOCATED AT TOP REAR LEFT-AND RIGHT-HAND CORNERS OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.





2-16. AMERICAN BOSCH PSB-12BT FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash number.

28 HOSE ASSEMBLY -2 (44). Install on fuel pressure connector (45) and tube adapter (34).

29 HOSE ASSEMBLY -1 (46). Install on lube oil pressure connector (47) and tube adapter (33).

30 HOSE ASSEMBLY -15 (48). Install on lube oil return connector (49) and tube adapter (50).

31 HOSE ASSEMBLY -3 (51). Install on fuel return connector (52) and elbow (35).

32 HOSE ASSEMBLY -10 (53). Install on cap assembly (30) and MANIFOLD INLET (54).

NOTE

When installing fuel delivery lines, the number stamped on pump outlet ports should correspond to the number stamped on tag on fuel delivery line.

Reposition nozzle and adapter assembly holders as necessary to facilitate installing the fuel delivery lines. Ensure fuel delivery lines are properly seated before tightening.

Steps 33 thru 38 pertain to installation of fuel delivery lines, tagged with the part number 7541499, on LH nozzle and adapter assembly holders and the rear pump outlet ports.

33 FUEL DELIVERY LINE NO. 1 (55). Install in pump outlet port no. 1 and nozzle and adapter assembly holder (56).

34 FUEL DELIVERY LINE NO. 5 (57). Install in pump outlet port no. 5 and nozzle and adapter assembly holder (58).

35 FUEL DELIVERY LINE NO. 4 (59). Install in pump outlet port no. 4 and nozzle and adapter assembly holder (60).

36 FUEL DELIVERY LINE NO. 3 (61). Install in pump outlet port no. 3 and nozzle and adapter assembly holder (62).

37 FUEL DELIVERY LINE NO. 2 (63). Install in pump outlet port no. 2 and nozzle and adapter assembly holder (64).

38 FUEL DELIVERY LINE NO. 6 (65). Install in pump outlet port no. 6 and nozzle and adapter assembly holder (66).

NOTE

Steps 39 thru 44 pertain to installation of fuel delivery lines, tagged with the part number 7540637, on RH nozzle and adapter assembly holders and the front pump outlet ports.

39 FUEL DELIVERY LINE NO. 6 (67). Install in pump outlet port no. 6 and nozzle and adapter assembly holder (68).

40 FUEL DELIVERY LINE NO. 2 (69). Install in pump outlet port no. 2 and nozzle and adapter assembly holder (70).

41 FUEL DELIVERY LINE NO. 3 (71). Install in pump outlet port no. 3 and nozzle and adapter assembly holder (72).

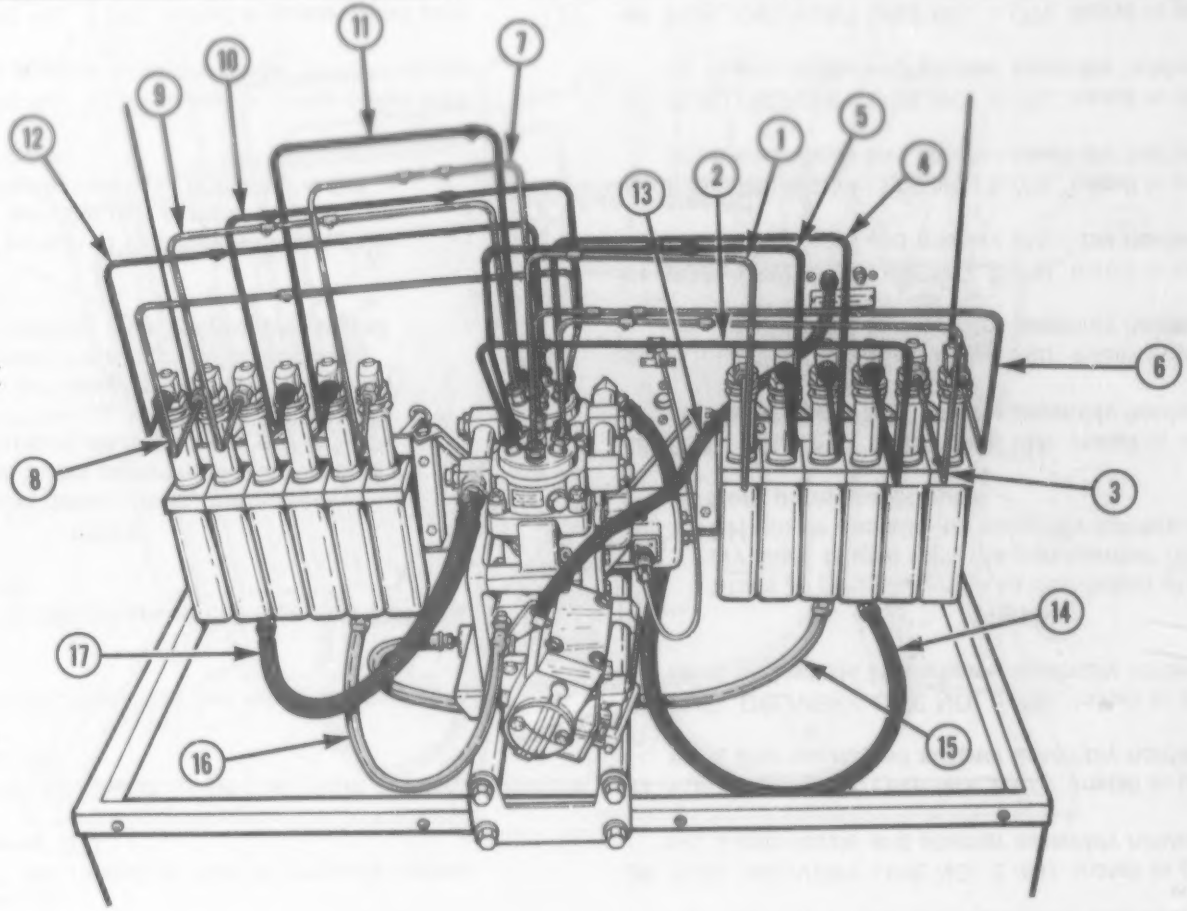
42 FUEL DELIVERY LINE NO. 5 (73). Install in pump outlet port no. 5 and nozzle and adapter assembly holder (74).

43 FUEL DELIVERY LINE NO. 4 (75). Install in pump outlet port no. 4 and nozzle and adapter assembly holder (76).

44 FUEL DELIVERY LINE NO. 1 (77). Install in pump outlet port no. 1 and nozzle and adapter assembly holder (78).

2-16. AMERICAN BOSCH PSB-12BT FUEL INJECTOR PUMP (cont)

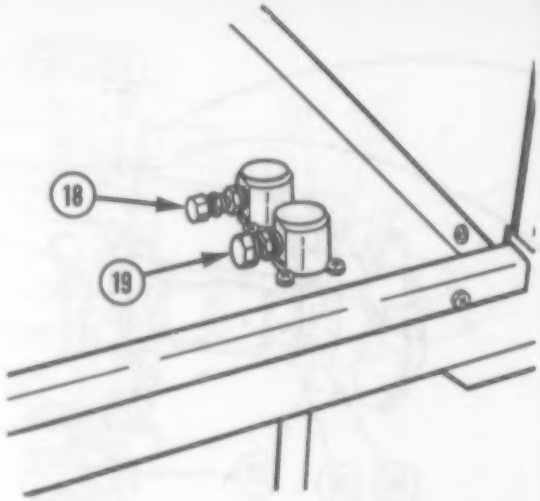
REMOVAL

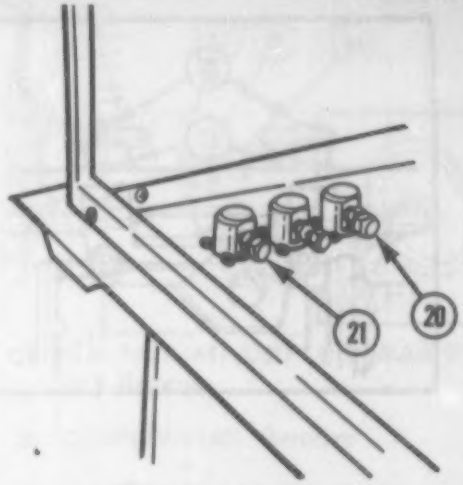


1 TWELVE FUEL DELIVERY LINES (1 THRU 12). Remove.

2 FIVE HOSE ASSEMBLIES (13 THRU 17). Remove.

3 FOUR CAPS (18 THRU 21). Install.

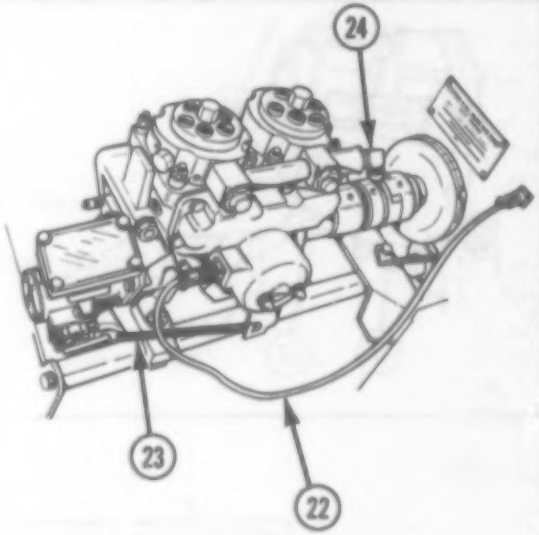


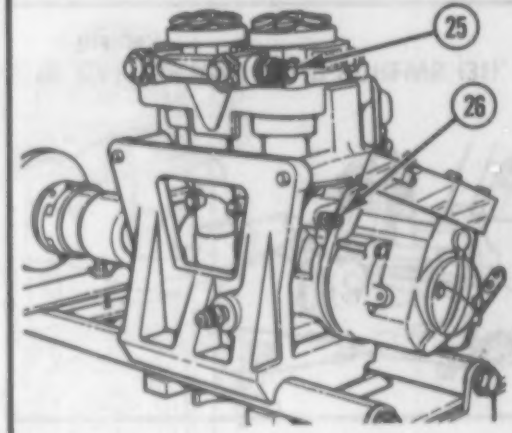


4 SHUTOFF SOLENOID CABLE (22). Remove.

5 THROTTLE SPRING (23). Remove.

6 ELBOW (24). Remove.





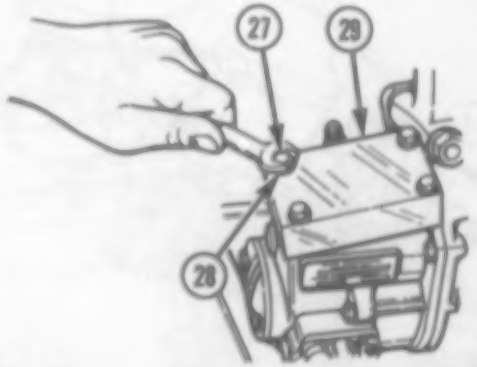
7 TUBE ADAPTER (25). Remove.

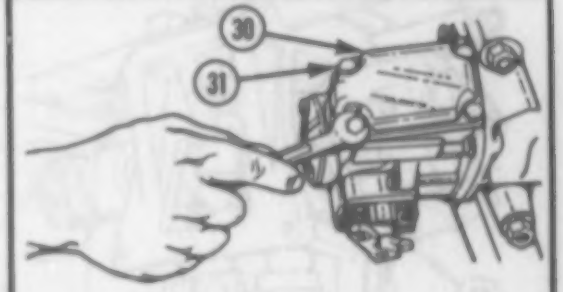
8 TUBE ADAPTER (26). Remove.

2-16. AMERICAN BOSCH PSB-12BT FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

9 FOUR SCREWS (27), FOUR WASHERS (28), AND CAP ASSEMBLY (29). Remove.





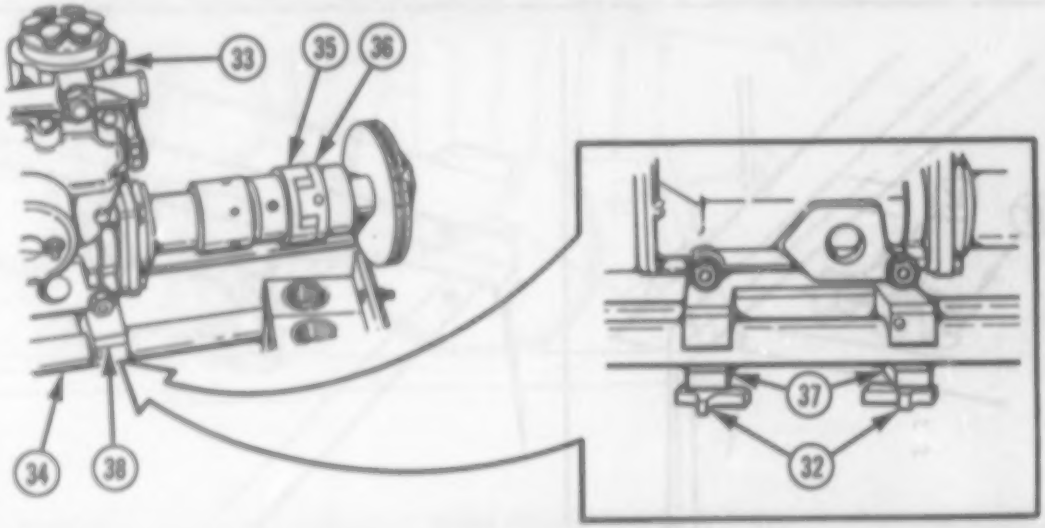
10 CAP (30) AND FOUR SCREWS (31). Install.

11 TWO HAND KNOB ASSEMBLIES (32). Loosen.

12 FUEL INJECTOR PUMP (33). Pull back on mounting rails (34) to disengage driven coupling (35) from drive coupling (36).

13 TWO HAND KNOB ASSEMBLIES (32) AND TWO CLAMP BARS (37). Remove.

14 FUEL INJECTOR PUMP (33) WITH PUMP BRACKET ASSEMBLY (38). Remove.

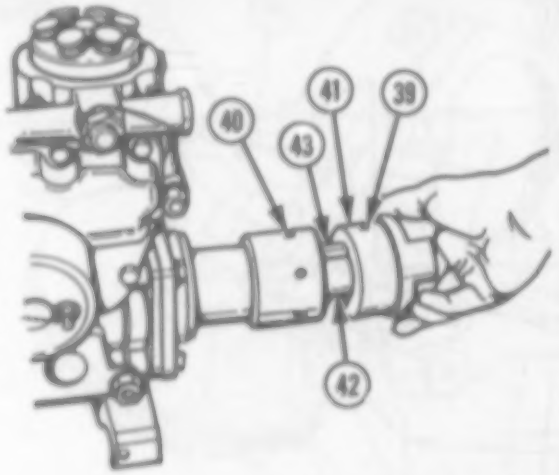


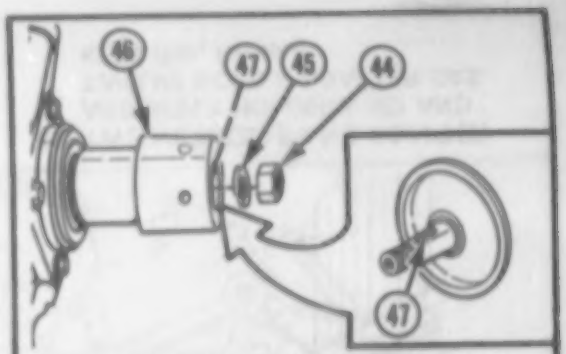
15 TWO SETSCREWS (39 AND 40). Loosen.

16 DRIVEN COUPLING (41). Remove.

17 SHAFT (42). Remove.

18 KEY (43). Remove.





19 HUB NUT (44) AND LOCKWASHER (45). Remove.

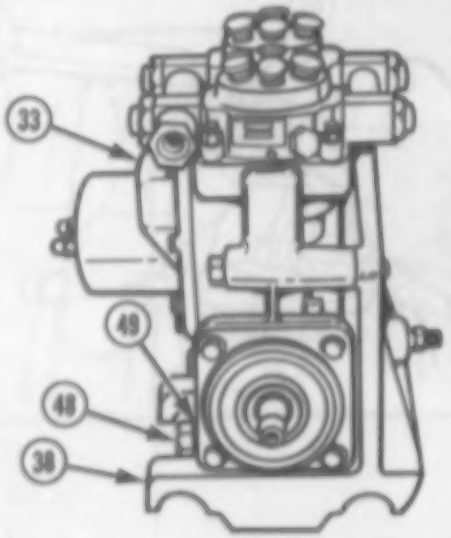
20 COUPLING (46). Remove.

21 WOODRUFF KEY (47). Remove.

22 FOUR NUTS (48) AND FOUR WASHERS (49). Remove.

23 FUEL INJECTOR PUMP (33). Remove from pump bracket assembly (38).

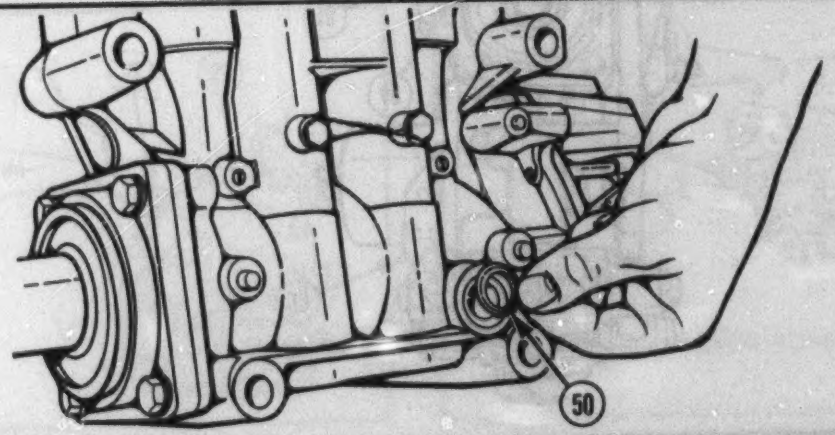
24 PUMP BRACKET ASSEMBLY (38). Remove.



2-16. AMERICAN BOSCH PSB-12BT FUEL INJECTOR PUMP (cont)

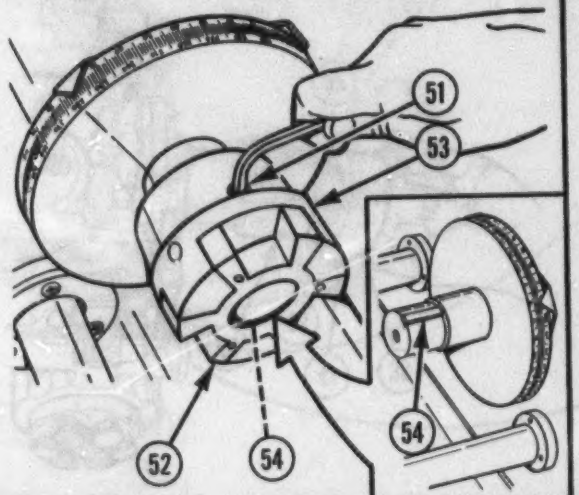
REMOVAL (cont)

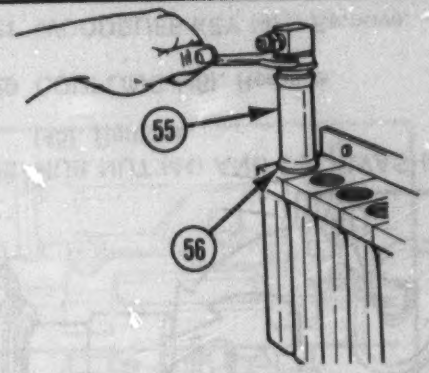
25 PREFORMED PACKING (50). Remove.



26 SETSCREW (51). Loosen.

27 FLEXIBLE COUPLING INSERT (52), DRIVE COUPLING (53), AND KEY (54). Remove.

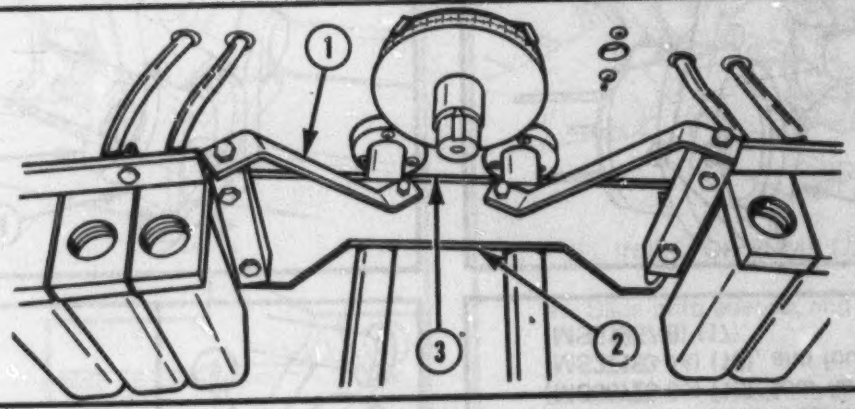




28 TWELVE NOZZLE AND ADAPTER ASSEMBLY HOLDERS (55) AND TWELVE NOZZLE ADAPTER GASKETS (56). Remove.

INSTALLATION

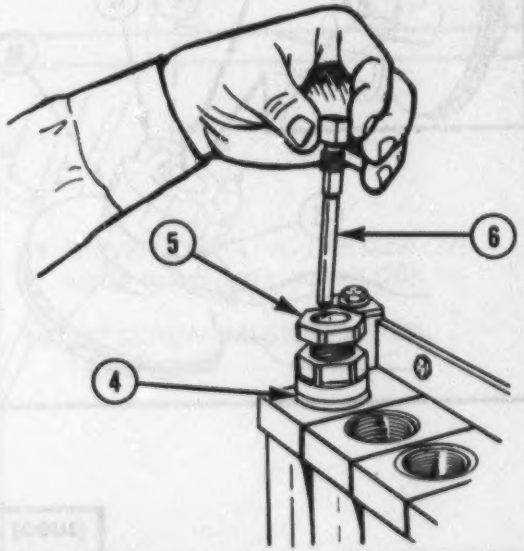
1 ACCUMULATOR MOUNTING ASSEMBLY (1). Position plate (2) 2 in. (5.08 cm) from instrument panel (3).

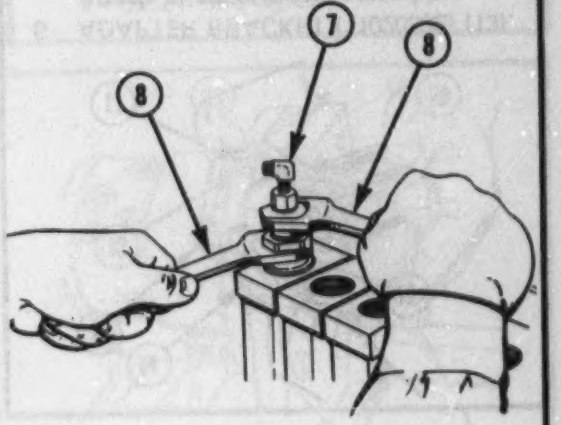


2 SIX NOZZLE ADAPTER GASKETS (11020348) (4), SIX NOZZLE ADAPTER ASSEMBLIES (11020345) (5), SIX NOZZLES (6), AND SIX ELBOWS (8405X4) (7).

a. Install in inner three LH and RH accumulator can assemblies.

b. Tighten using two nozzle adapter wrenches (8).

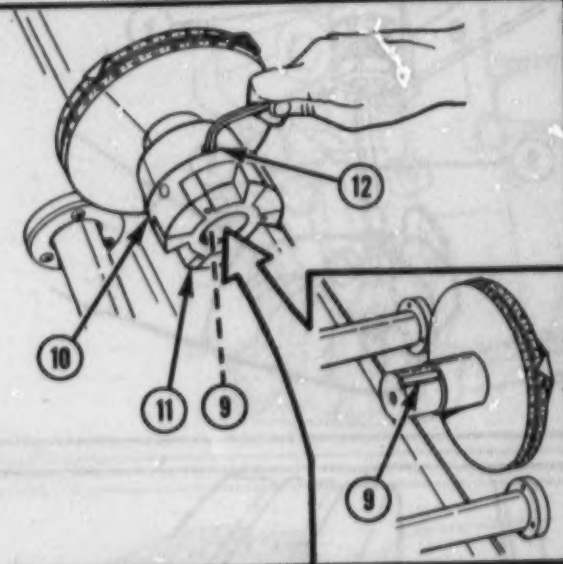




REPLACE

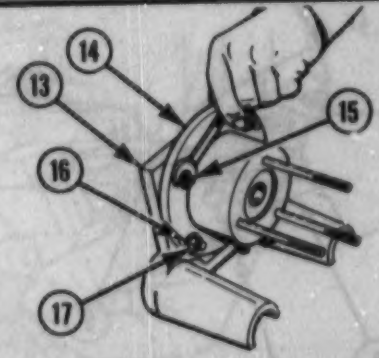
2-17. SIMMONDS SU FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



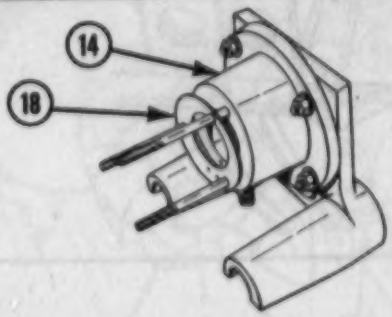
3 KEY (MS20067-271) (9), DRIVE COUPLING (7551246) (10), AND FLEXIBLE COUPLING INSERT (L110S0X) (11). Install.

4 SETSCREW (MS51963-85) (12). Tighten.

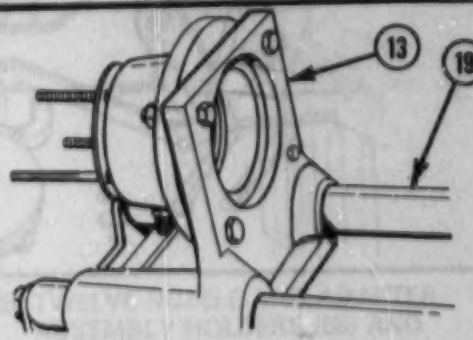


5 ADAPTER BRACKET (11020392) (13). Attach to adapter ring assembly (11020380) (14) with four screws (MS90725-65) (15), four flat washers (MS27183-14) (16), and four nuts (MS51967-8) (17).

NOTE
When installing gasket make sure that holes in gasket aline with holes in adapter ring assembly.



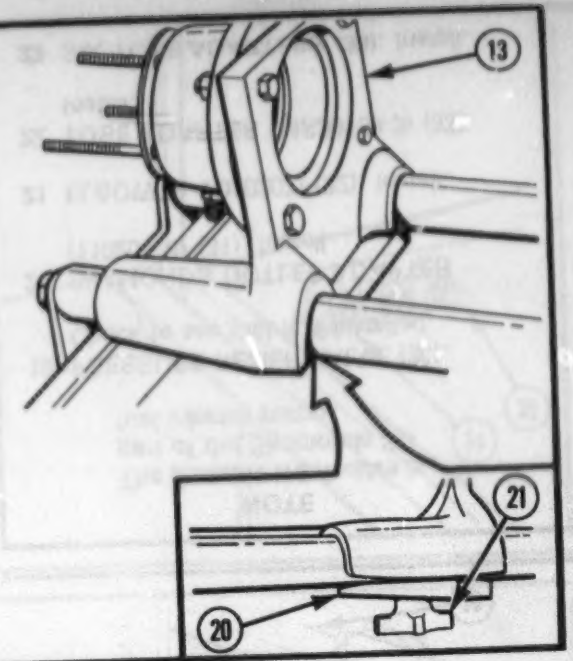
6 GASKET (7550859) (18). Install on adapter ring assembly (14).

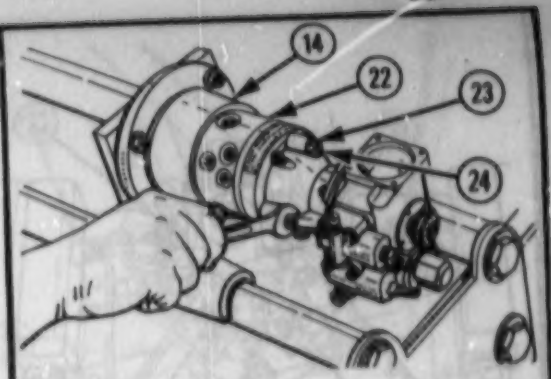


7 ADAPTER BRACKET (13). Place on mounting rails (19).

8 CLAMP BAR (11020262) (20) AND HAND KNOB ASSEMBLY (11020266) (21). Install into adapter bracket (13).

9 HAND KNOB ASSEMBLY (21). Tighten.

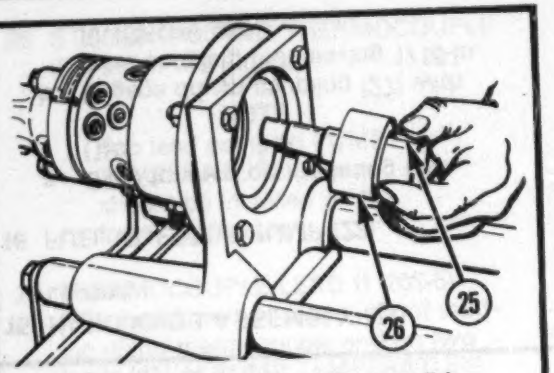




10 FUEL INJECTOR PUMP (22).

a. Slide onto adapter ring assembly (14).

b. Install three washers (MS27183-12) (23) and three nuts (MS51968-5) (24) and tighten.

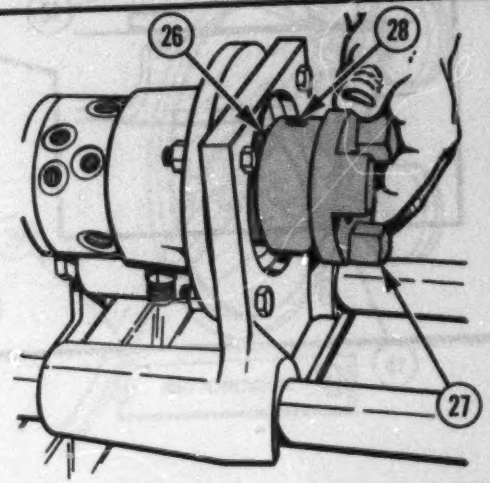


11 KEY (MS20067-271) (25). Install in splined coupling (11020386) (26).

12 SPLINED COUPLING (26). Install.

13 DRIVEN COUPLING (7551229) (27). Install on splined coupling (26).

14 SETSCREW (MS51963-85) (28). Tighten.



2-17. SIMMONDS SU FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

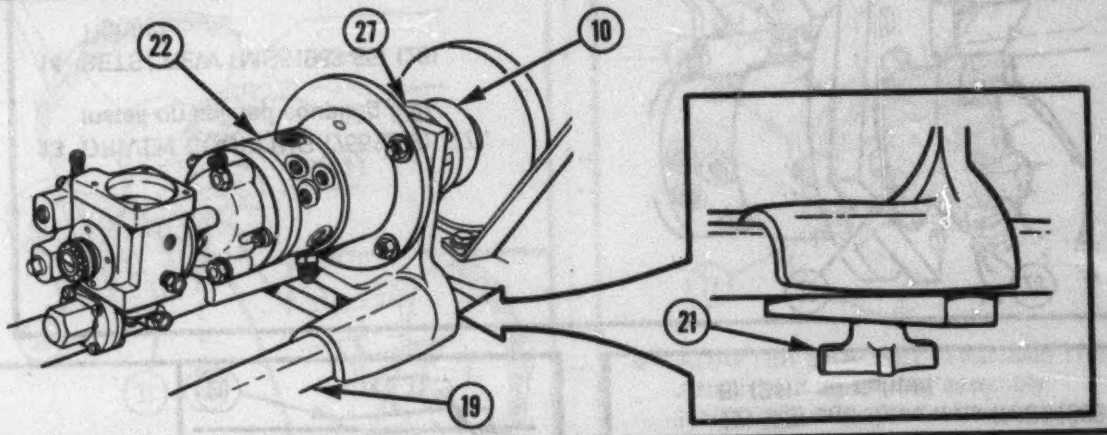
15 HAND KNOB ASSEMBLY (21). Loosen.

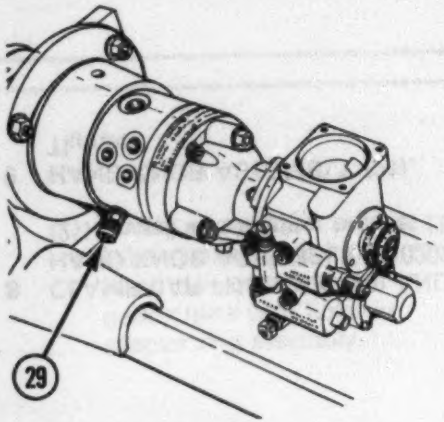
16 FUEL INJECTOR PUMP (22).

a. Slide forward on mounting rails (19).

b. Engage driven coupling (27) with drive coupling (10) leaving 1/16-in. (0.159-cm) gap.

17 HAND KNOB ASSEMBLY (21). Tighten.





18 STRAIGHT CONNECTOR (8-4 010102) (29). Install.

NOTE
The pressure relief valve is part of the Simmonds SU fuel injector pump.

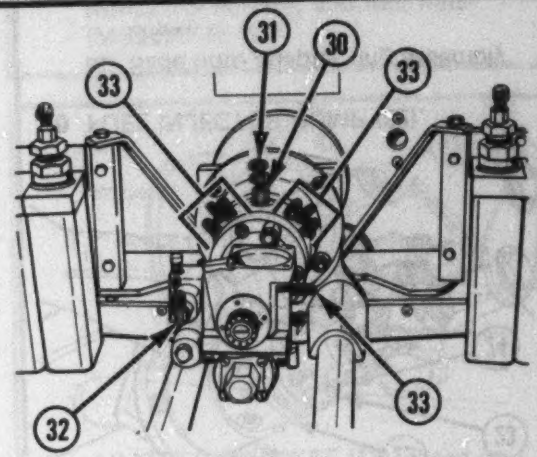
19 PRESSURE RELIEF VALVE (30). Check to see that it is installed.

20 SIMMONDS OUTLET ADAPTER (11020474) (31). Install.

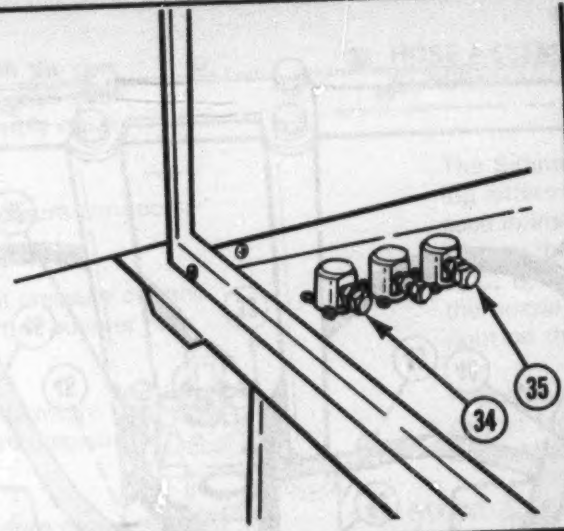
21 ELBOW (4-4 010202) (32). Install.

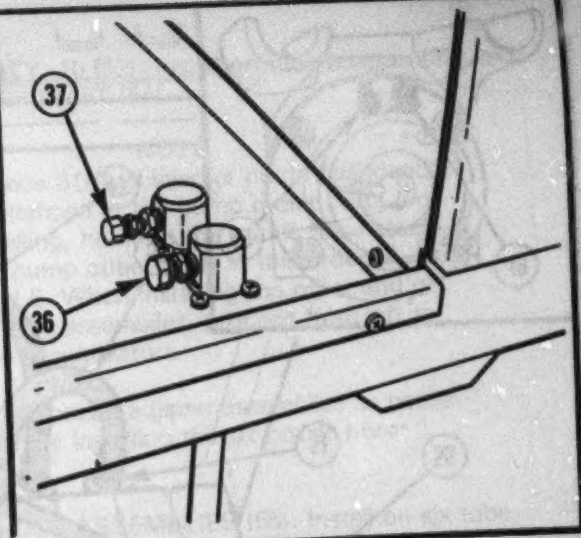
22 TUBE ADAPTER (MS39158-3) (33). Install.

23 SIX TUBE ADAPTERS (33). Install.



24 FOUR CAPS (34 THRU 37) LOCATED AT TOP REAR LEFT- AND RIGHT-HAND CORNERS OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.



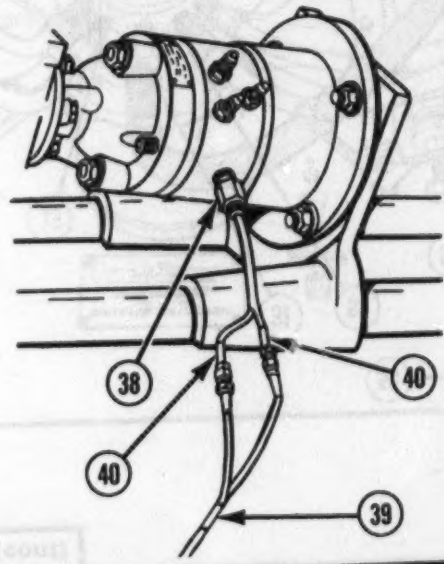


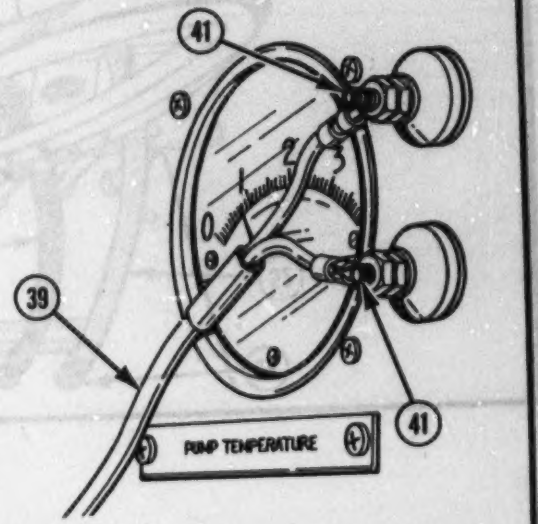
25 STUFFING GLAND THERMOCOUPLE (8T18B14) (38). Install.

NOTE

Top lead going to PUMP TEMPERATURE gage should be installed on the larger connector.

26 THERMOCOUPLE LEAD (L-203-5) (39). Install on two leads (40) of stuffing gland thermocouple and on two leads (41) of PUMP TEMPERATURE gage.





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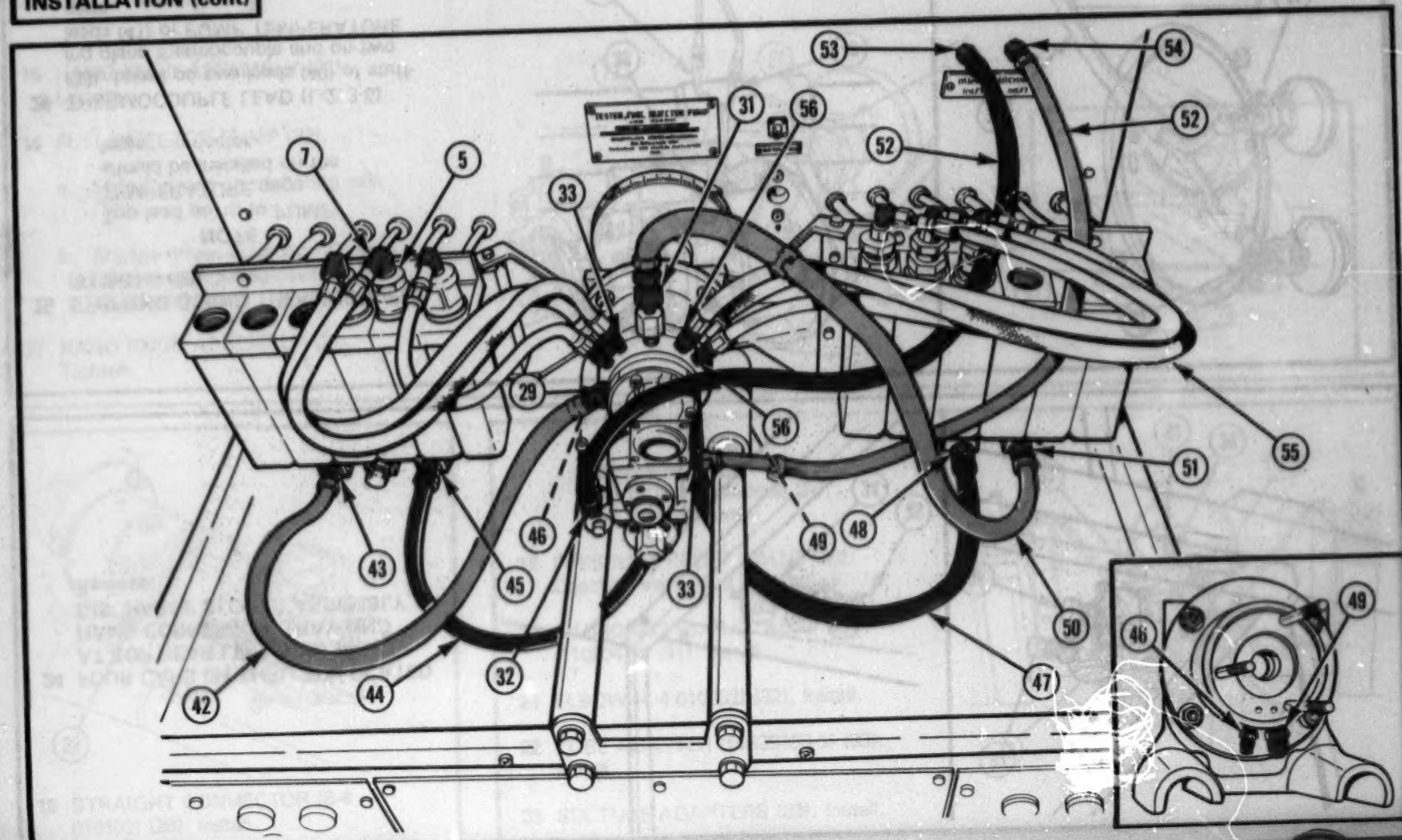
2-17. SIMMONDS SU FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease in installing, the hose assembly nomenclature includes the dash number.

27 HOSE ASSEMBLY -2 (42). Install on fuel pressure connector (43) and straight connector (29).

28 HOSE ASSEMBLY -1 (44). Install on lube oil pressure connector (45) and tube adapter (46) on bottom left of adapter ring assembly.

29 HOSE ASSEMBLY -15 (47). Install on lube oil return connector (48) and tube adapter (49) on bottom right of adapter ring assembly.

30 HOSE ASSEMBLY -3 (50). Install on fuel return connector (51) and Simmonds outlet adapter (31).

31 HOSE ASSEMBLY -10 (52). Install on elbow (32) and MANIFOLD INLET (53).

32 HOSE ASSEMBLY -10 (52). Install on tube adapter (33) and SUPERCHARGER INLET (54).

NOTE

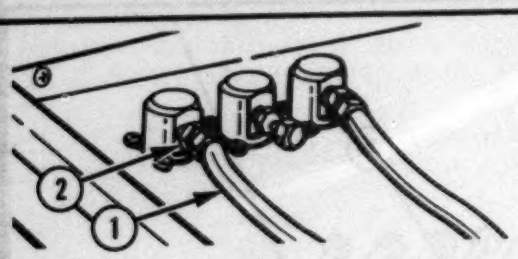
The Simmonds SU fuel injector pump has identifying letters stamped at the pump outlet ports. For ease in installing, hook up the nozzle hose assemblies to the pump outlet ports in this order: A, D, F, C, B, and E. When installing the other end of the nozzle hose assemblies, proceed from left to right on the accumulators.

Reposition six nozzle adapter assemblies as necessary to facilitate installing the six nozzle hose assemblies.

33 SIX NOZZLE HOSE ASSEMBLIES (55). Install on six tube adapters (33) in pump outlet ports (56) and on six elbows (7) on six nozzle adapter assemblies (5).

2-17. SIMMONDS SU FUEL INJECTOR PUMP (cont)

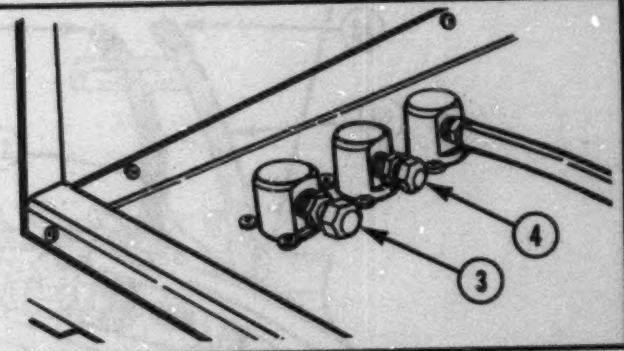
HOOKUP OF NOZZLE SPRAY CHAMBER TO PERFORM STATIC TEST



1 HOSE ASSEMBLY -2 (1). Remove from connector (2).

2 CAP (3). Install.

3 CAP (4). Remove.



4 NOZZLE SPRAY CHAMBER (5). Attach hose (6) to primer outlet connector (7).

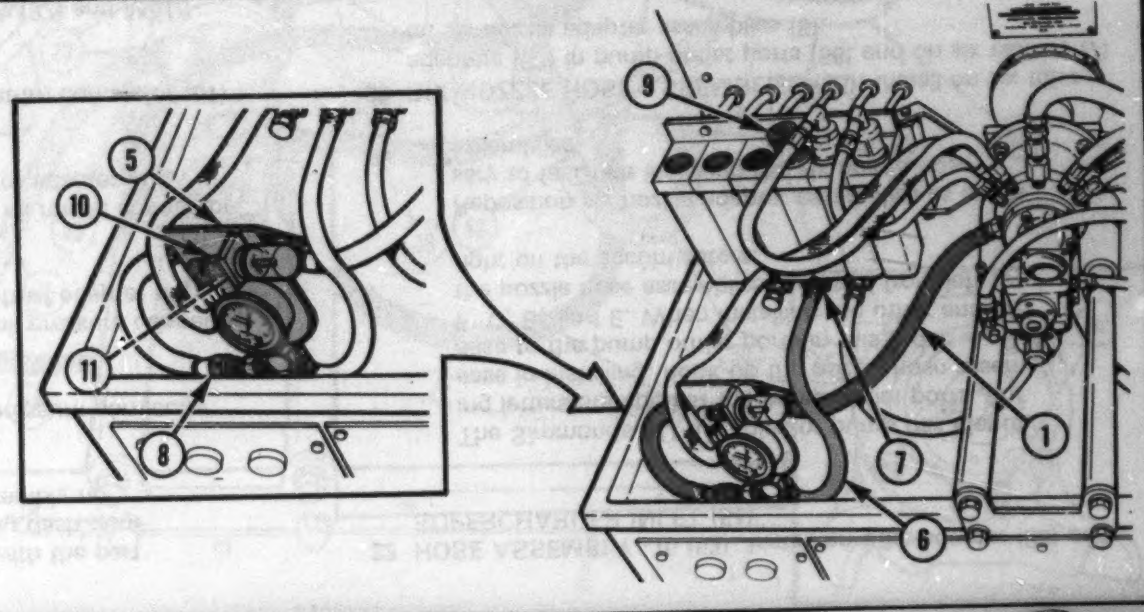
5 HOSE ASSEMBLY -2 (1). Install on connector (8) on nozzle spray chamber (5).

6 NOZZLE ADAPTER ASSEMBLY (9). Loosen using two nozzle adapter wrenches.

7 NOZZLE (10).

a. Pull out from nozzle adapter assembly (9).

b. Push through rubber stopper (11) on nozzle spray chamber (5).



REMOVAL OF NOZZLE SPRAY CHAMBER HOOKUP FOR STATIC TEST

1 NOZZLE (1).

a. Remove from nozzle spray chamber (2).

b. Install on nozzle adapter assembly (3).

2 NOZZLE ADAPTER ASSEMBLY (3). Tighten using two nozzle adapter wrenches.

3 CAP (4). Remove.

4 HOSE ASSEMBLY -2 (5).

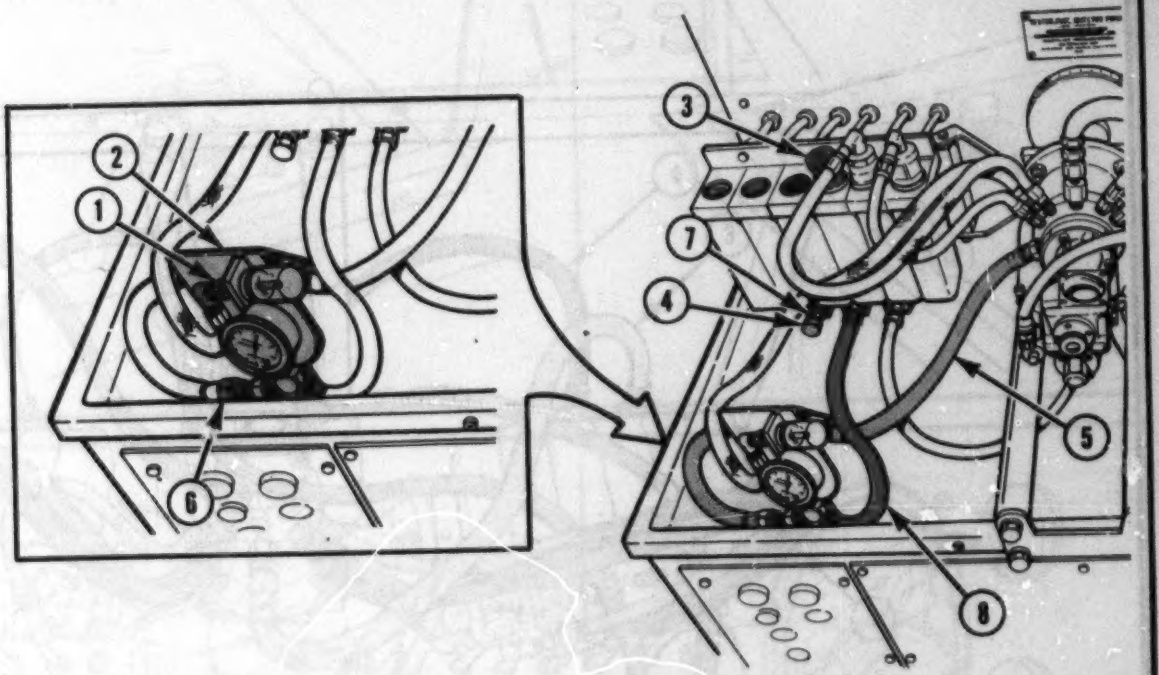
a. Remove from connector (6) on nozzle spray chamber (2).

b. Install on connector (7).

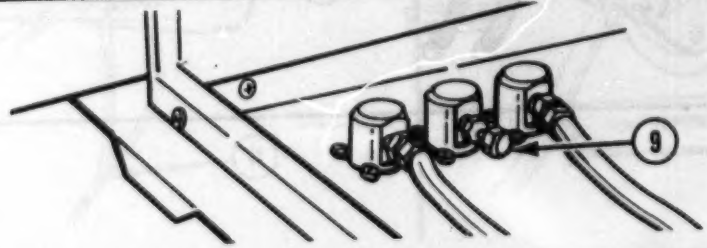
5 NOZZLE SPRAY CHAMBER (2).

a. Remove hose (8).

b. Remove nozzle spray chamber (2).

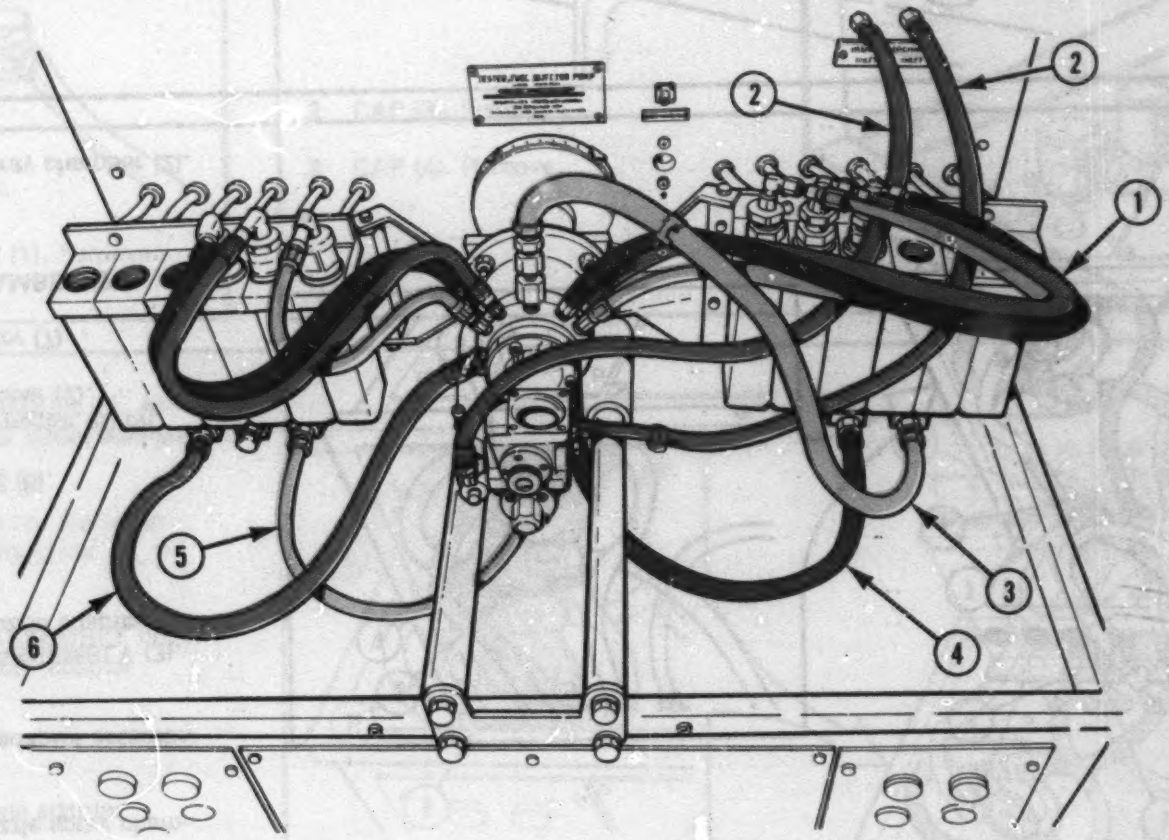


6 CAP (9). Install.



2-17. SIMMONDS SU FUEL INJECTOR PUMP (cont)

REMOVAL

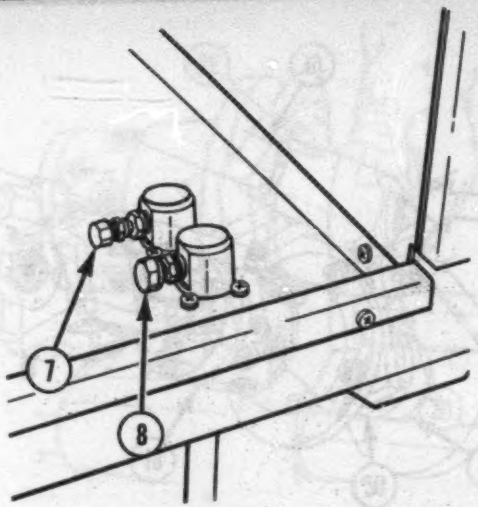


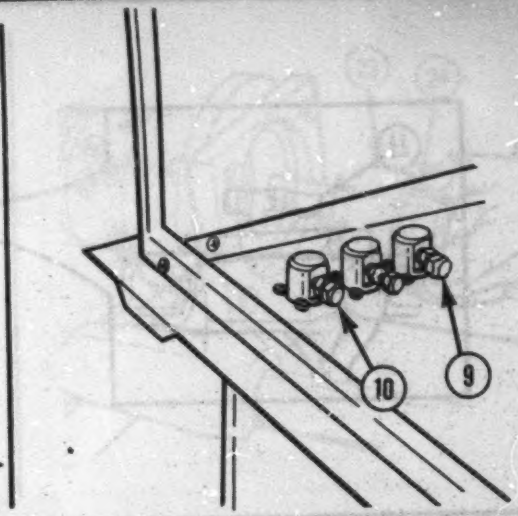
1 SIX NOZZLE HOSE ASSEMBLIES (1). Remove.

2 TWO HOSE ASSEMBLIES (2). Remove.

3 FOUR HOSE ASSEMBLIES (3 THRU 6). Remove.

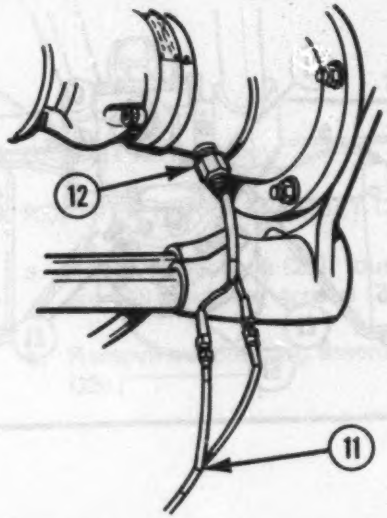
4 FOUR CAPS (7 THRU 10). Install.

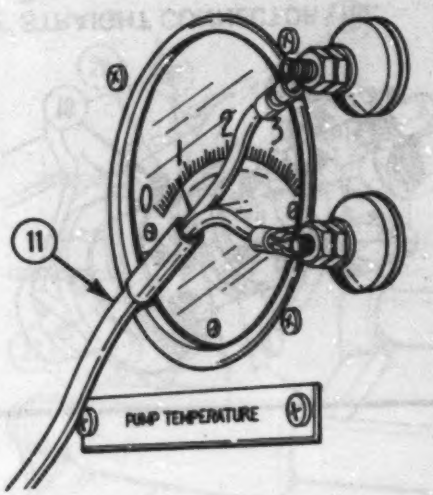




5 THERMOCOUPLE LEAD (11). Remove.

6 STUFFING GLAND THERMOCOUPLE (12). Remove.





2-17. SIMMONDS SU FUEL INJECTOR PUMP (cont)

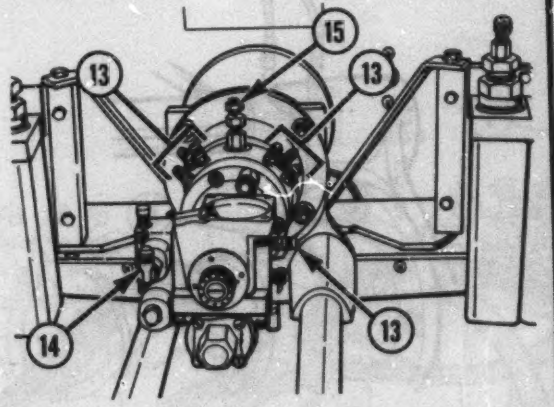
REMOVAL (cont)

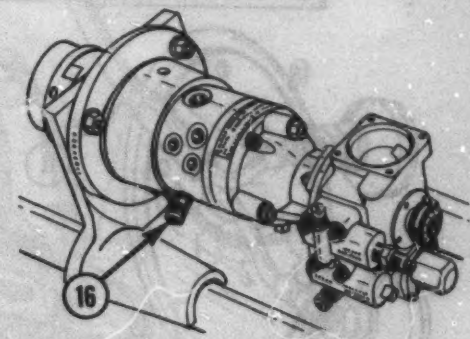
7 SIX TUBE ADAPTERS (13). Remove.

8 TUBE ADAPTER (13). Remove.

9 ELBOW (14). Remove.

10 SIMMONDS OUTLET ADAPTER (15). Remove.



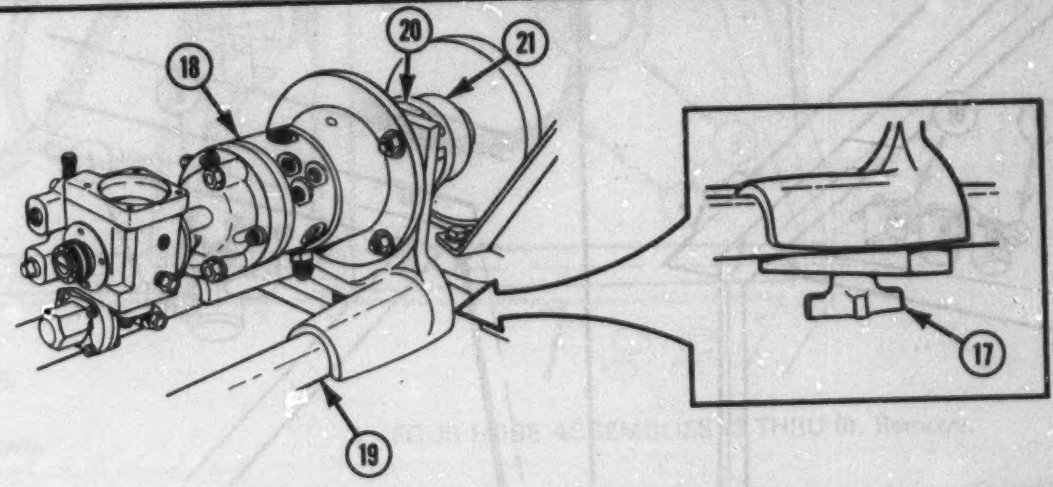


11 STRAIGHT CONNECTOR (16). Remove.

12 HAND KNOB ASSEMBLY (17). Loosen.

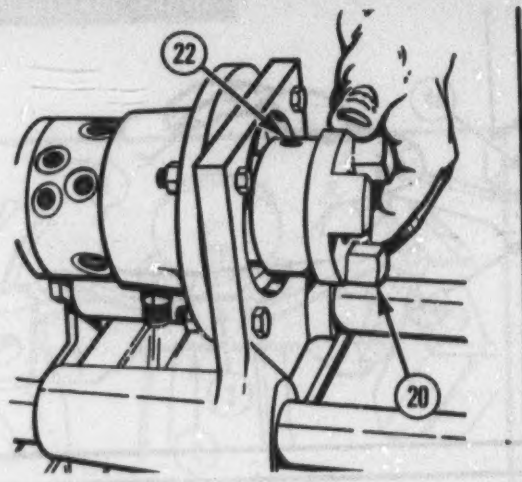
13 FUEL INJECTOR PUMP (18). Pull back on mounting rails (19) to disengage driven coupling (20) from drive coupling (21).

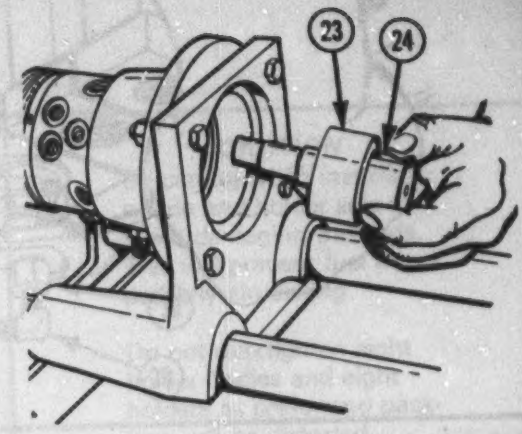
14 HAND KNOB ASSEMBLY (17). Tighten.

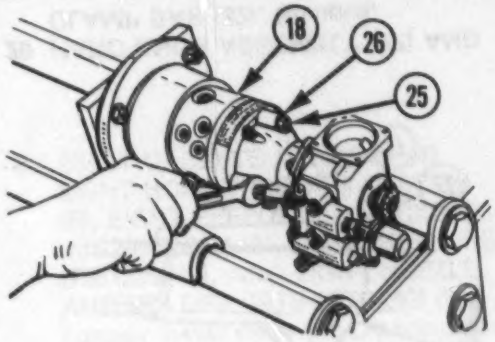


15 SETSCREW (22). Loosen.

16 DRIVEN COUPLING (20), SPLINED COUPLING (23), AND KEY (24). Remove.







17 FUEL INJECTOR PUMP (18).

a. Remove three nuts (25) and three washers (26).

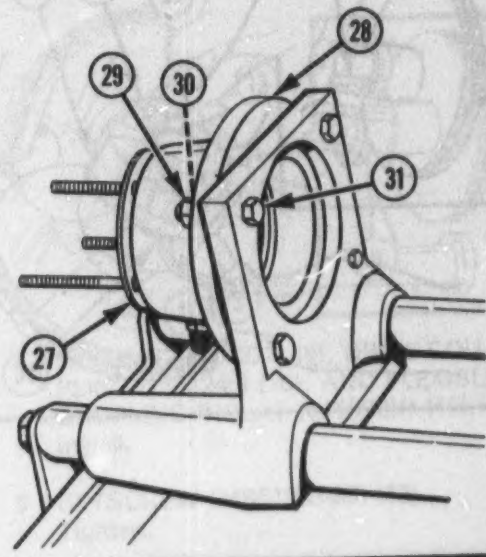
b. Remove fuel injector pump (18).

18 GASKET (27). Remove.

19 ADAPTER RING ASSEMBLY (28).

a. Remove four nuts (29), four washers (30), and four screws (31).

b. Remove adapter ring assembly (28).



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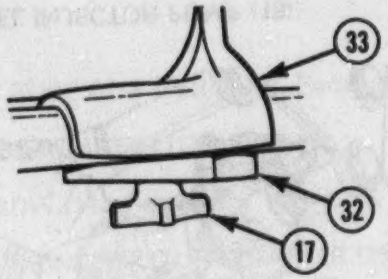
2-17. SIMMONDS SU FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

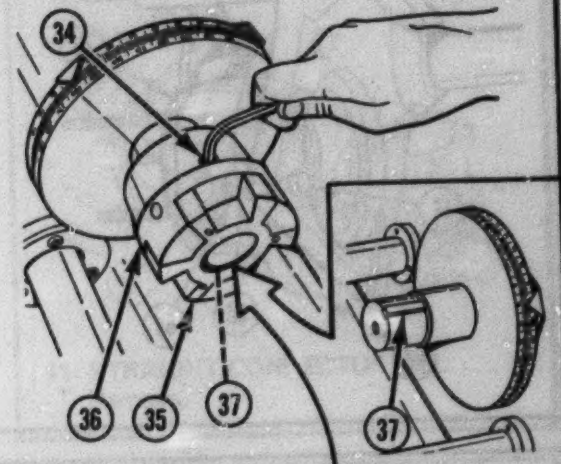


20 HAND KNOB ASSEMBLY (17) AND CLAMP BAR (32). Remove.

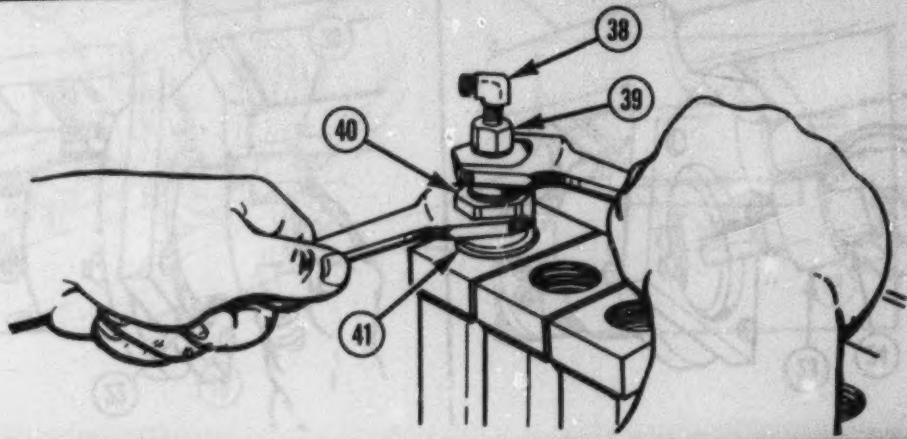
21 ADAPTER BRACKET (33). Remove.

22 SETSCREW (34). Loosen.

23 FLEXIBLE COUPLING INSERT (35), DRIVE COUPLING (36), AND KEY (37). Remove.

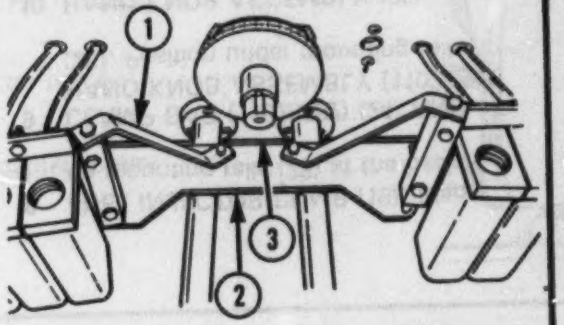


24 SIX ELBOWS (38), SIX NOZZLES (39), SIX NOZZLE ADAPTER ASSEMBLIES (40), AND SIX NOZZLE ADAPTER GASKETS (41). Remove.



INSTALLATION

1 ACCUMULATOR MOUNTING ASSEMBLY (1). Position plate (2) 2.50 in. (6.35 cm) from instrument panel (3).

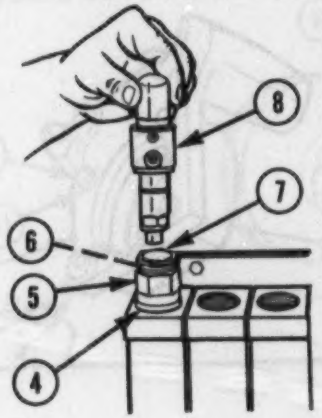


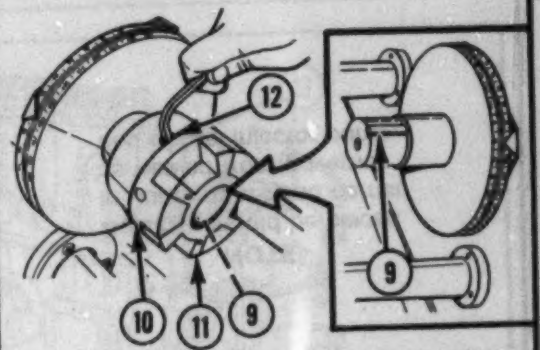
CAUTION

Be careful when installing nozzle and holder sets to avoid damaging the ends. This will prevent fuel from properly circulating.

Do not overtighten eight holder bodies and eight holders as preformed packings will be distorted.

2 EIGHT GASKETS (11020348) (4), EIGHT HOLDER BODIES (7551238) (5), EIGHT PREFORMED PACKINGS (MS29513-021) (6), EIGHT HOLDERS (7551239) (7), AND EIGHT NOZZLE AND HOLDER SETS (7551240) (8). Loosely install six in the LH accumulator can assemblies and two in the far RH accumulator can assemblies.



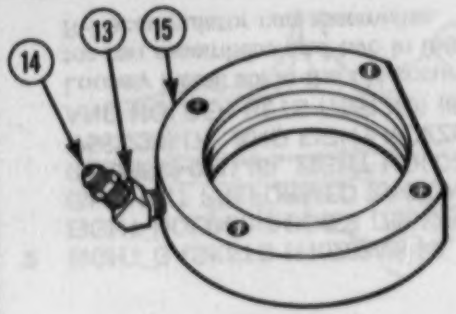


3 KEY (MS20067-271) (9), DRIVE COUPLING (7551246) (10), AND FLEXIBLE COUPLING INSERT (L110S0X) (11). Install.

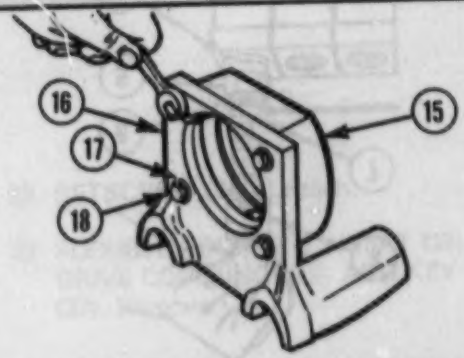
4 SETSCREW (MS51963-85) (12). Tighten.

2-18. INTERNATIONAL HARVESTER 3200 FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



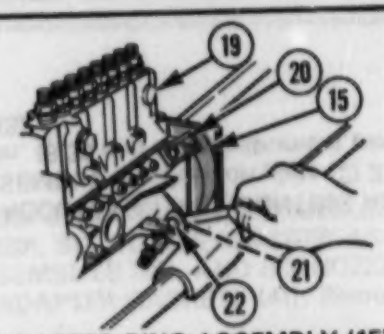
5 ELBOW (4-4 130339) (13) AND STRAIGHT CONNECTOR (6-4 010102) (14). Install on adapter ring assembly (7551272) (15).



6 ADAPTER BRACKET (11020392) (16). Attach to adapter ring assembly (15) with four washers (MS27183-14) (17) and four screws (MS90725-60) (18).

NOTE

Retainer should be placed in upper right-hand corner as viewed from governor end of fuel injector pump.

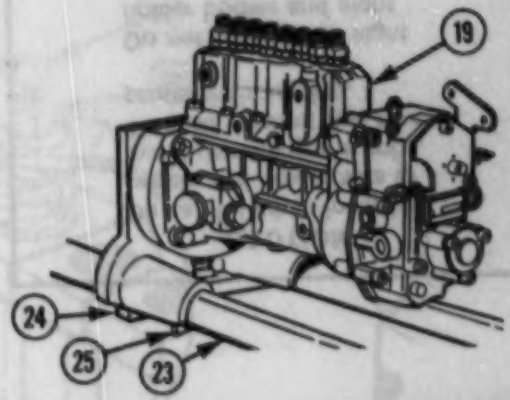


7 ADAPTER RING ASSEMBLY (15). Attach to fuel injector pump (19) with retainer (7551250) (20), three washers (MS27183-14) (21), and four screws (MS90725-60) (22).

8 FUEL INJECTOR PUMP (19). Place on mounting rails (23) at the back.

9 CLAMP BAR (11020262) (24) AND HAND KNOB ASSEMBLY (11020206) (25). Position under mounting rails.

10 HAND KNOB ASSEMBLY (25). Tighten.

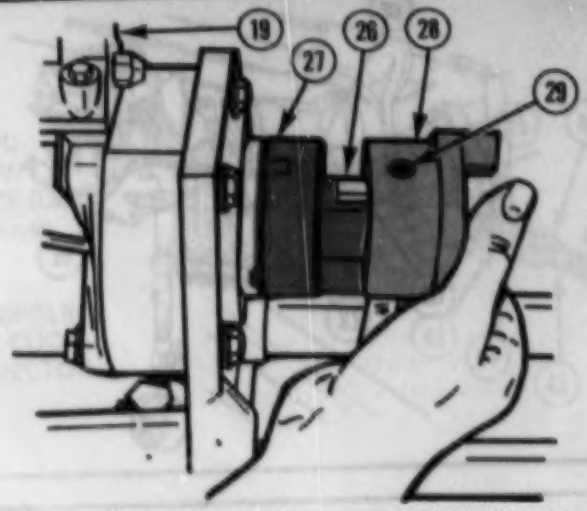


11 KEY (MS20067-275) (26). Install in adapter assembly (7551278) (27).

12 ADAPTER ASSEMBLY (27). Install on fuel injector pump (19).

13 DRIVEN COUPLING (7551229) (28). Install on adapter assembly (27).

14 SETSCREW (MS51963-85) (29). Tighten.



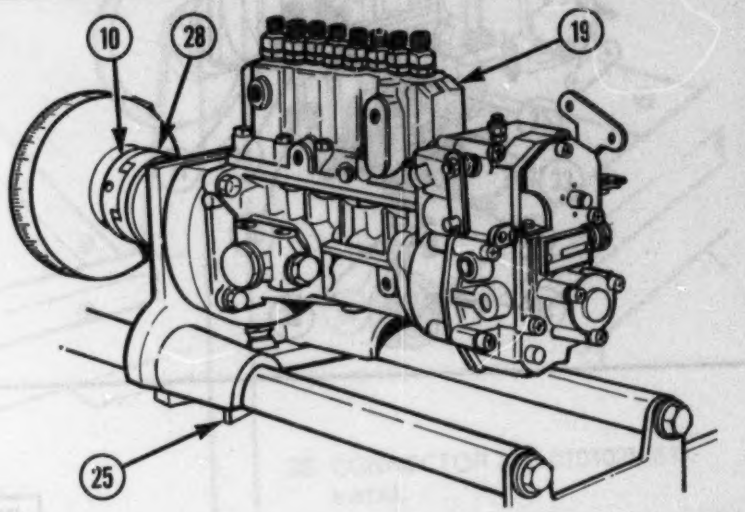
15 HAND KNOB ASSEMBLY (25). Loosen.

16 FUEL INJECTOR PUMP (19).

a. Slide forward.

b. Engage driven coupling (28) with drive coupling (10) leaving 1/16-in. (0.159-cm) gap.

17 HAND KNOB ASSEMBLY (25). Tighten.



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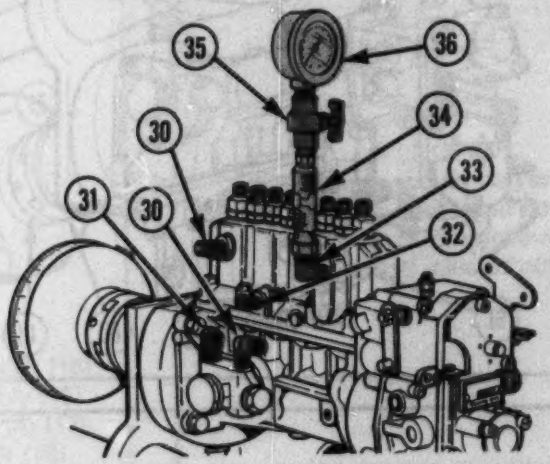
2-18. INTERNATIONAL HARVESTER 3200 FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

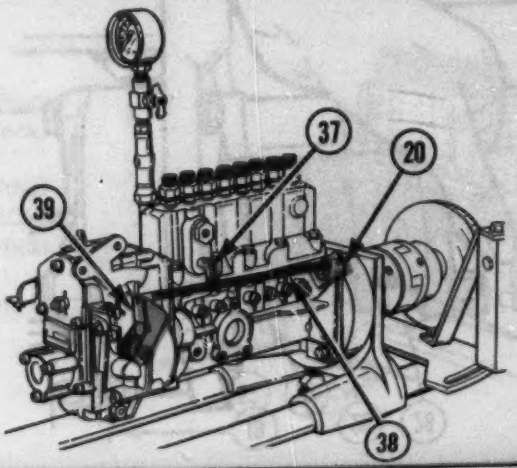
18 TWO ELBOWS (MS39162-5) (30), ELBOW (MS39162-3) (31), AND ELBOW (8-4 010202) (32). Install.

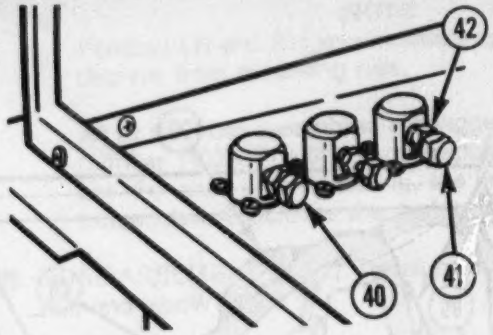
19 ELBOW (6-2 010202) (33), HOSE ASSEMBLY (7550081-9) (34), SHUTOFF COCK (MS35934-2) (35), AND PRESSURE GAGE (7551253) (36). Install.



20 ELBOW (MS39162-3) (37). Install.

21 THROTTLE SPRING (11020442) (38). Install on pump lever assembly (39) and retainer (20).



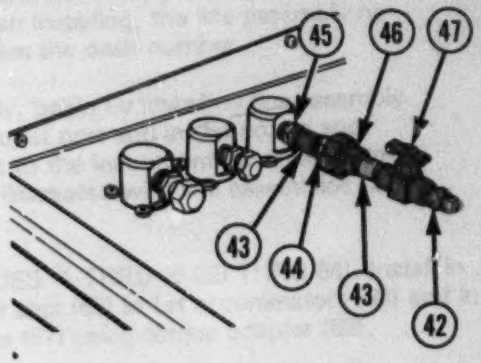


22 TWO CAPS (40 AND 41) LOCATED AT TOP REAR LEFT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.

23 CONNECTOR (42). Remove.

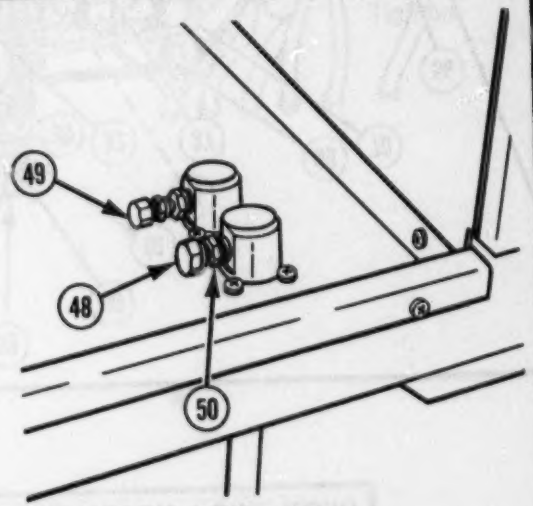
24 NIPPLE (MS51953-29) (43) AND FEMALE END OF UNION (WW-U-531, CLASS 1, TYPE B, SIZE 0.375 IN.) (44). Install into tester reducer bushing (45).

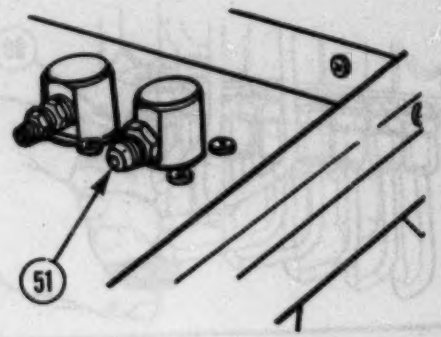
25 MALE END OF UNION (46); NIPPLE (MS51953-29) (43), SHUTOFF COCK (MS35934-2) (47), AND CONNECTOR (42). Assemble and install.



26 TWO CAPS (48 AND 49) LOCATED AT TOP REAR RIGHT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.

27 CONNECTOR (50). Remove.

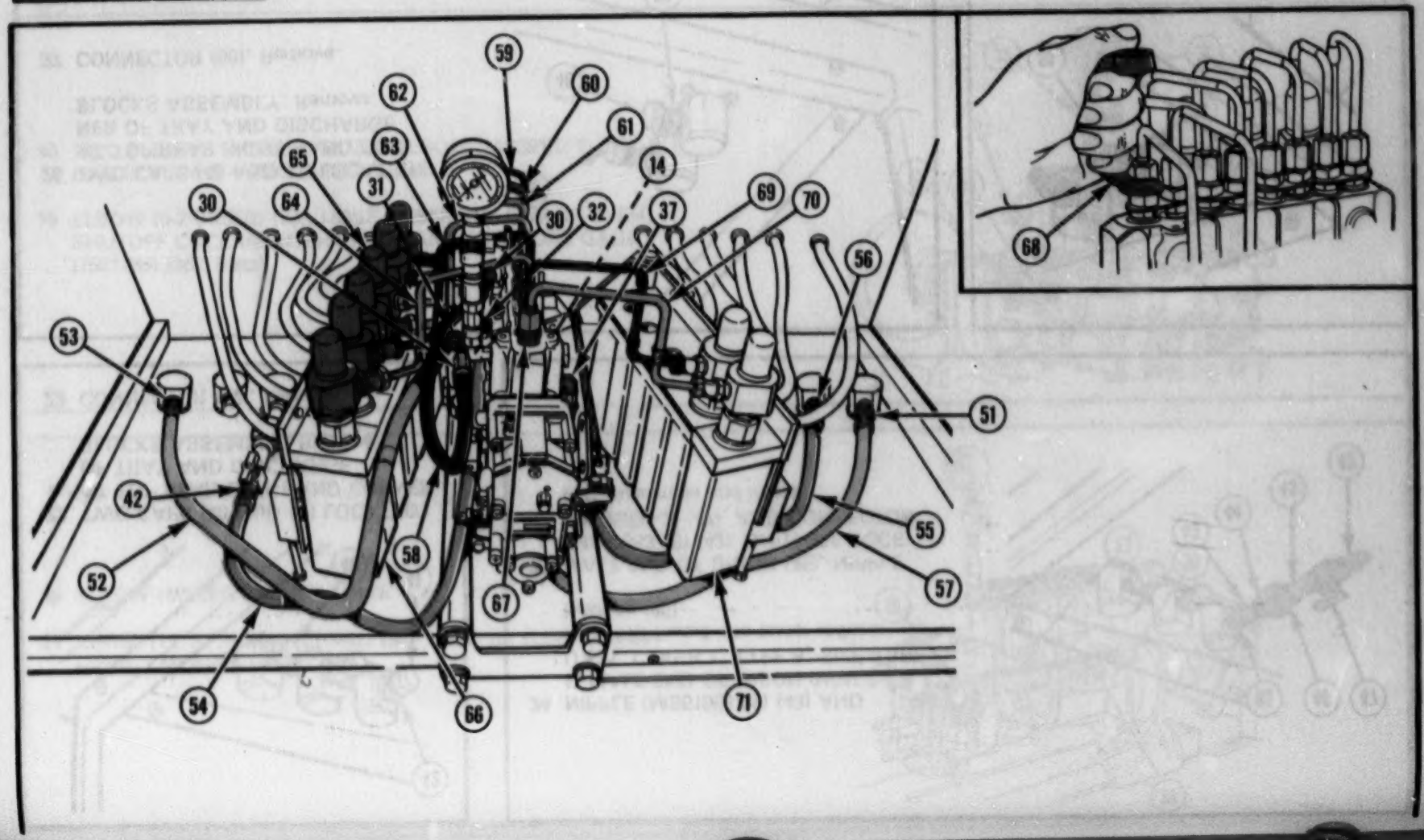




28 CONNECTOR (4-6 010102) (51). Install.

2-18. INTERNATIONAL HARVESTER 3200 FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

Position LH and RH accumulators approximately 15 degrees from mounting rails.

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash numbers.

29 HOSE ASSEMBLY -2 (52). Install on fuel pressure connector (53) and elbow (31).

30 HOSE ASSEMBLY -1 (54). Install on lube oil pressure connector (42) and elbow (32).

31 HOSE ASSEMBLY -15 (55). Install on lube oil return connector (56) and straight connector (14) on adapter ring assembly.

32 HOSE ASSEMBLY -10 (57). Install on fuel return connector (51) and elbow (37).

33 HOSE ASSEMBLY -6 (58). Install on elbow (30) and elbow (30).

NOTE

Reposition nozzle and holder sets as necessary to facilitate installing the six line assemblies.

NOTE

All of the line assemblies are tagged with the part number 7551273 and the corresponding dash number. For ease when installing, the line assembly nomenclature includes the dash number.

To install correctly, begin by installing line assembly -1 in the pump outlet port and in the nozzle and holder set closest to the instrument panel and continue in order as illustrated with line assemblies -2 thru -6.

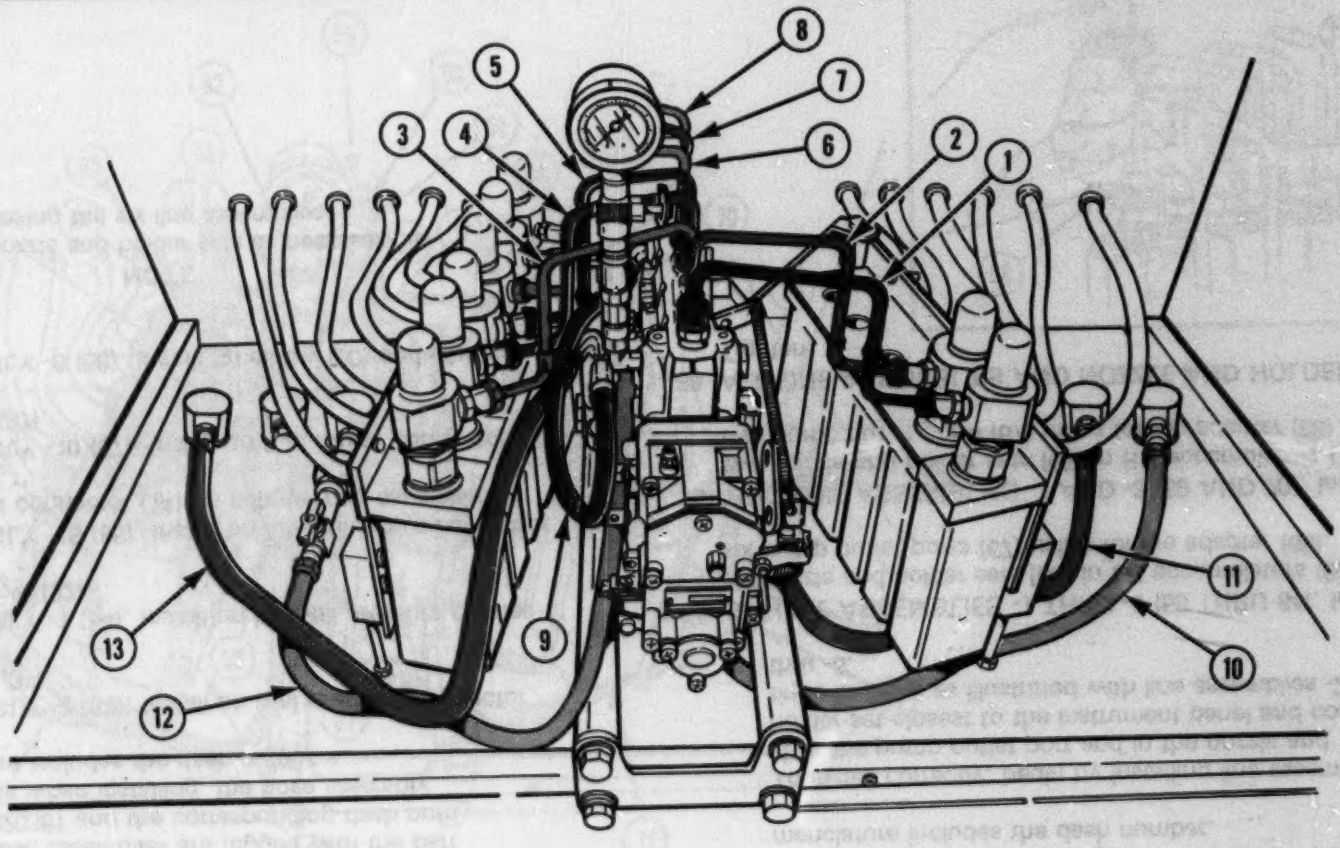
34 SIX LINE ASSEMBLIES -1 THRU -6 (59 THRU 64). Install in six nozzle and holder sets (65) in LH accumulators (66) and in six pump outlet ports (67) using torque adapter (68).

35 TWO LINE ASSEMBLIES -7 AND -8 (69 AND 70). Install in two nozzle and holder sets (65) in RH accumulators (71) and in two pump outlet ports (67) using torque adapter (68).

36 ALL LINE ASSEMBLIES AND NOZZLE AND HOLDER SETS. Tighten.

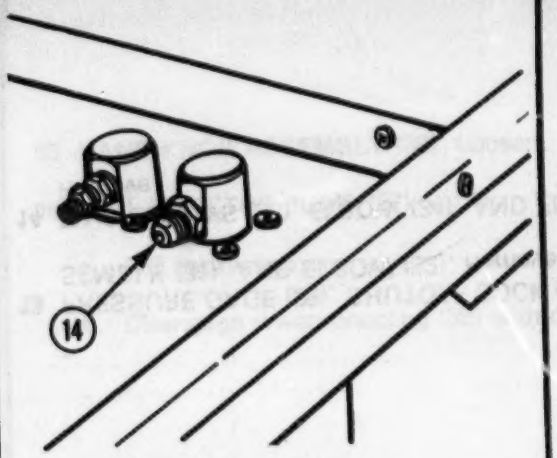
2-18. INTERNATIONAL HARVESTER 3200 FUEL INJECTOR PUMP (cont)

REMOVAL



1 EIGHT LINE ASSEMBLIES (1 THRU 8). Remove.

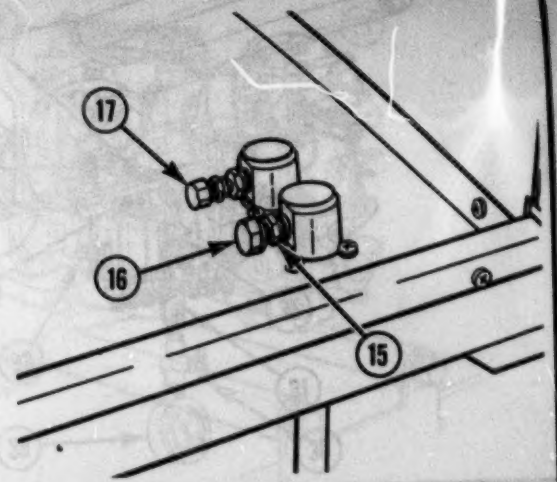
2 FIVE HOSE ASSEMBLIES (9 THRU 13). Remove.



3 CONNECTOR (14). Remove.

4 CONNECTOR (15). Install.

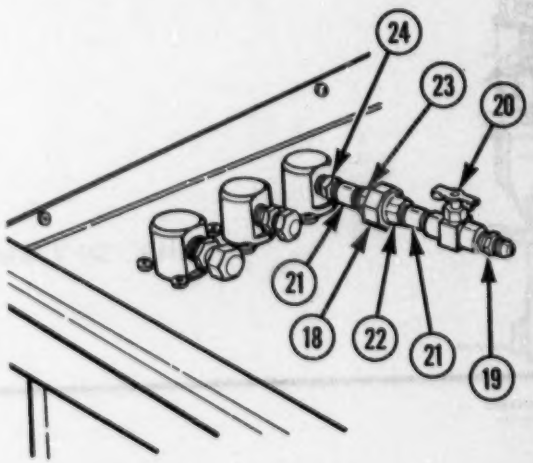
5 TWO CAPS (16 AND 17). Install.

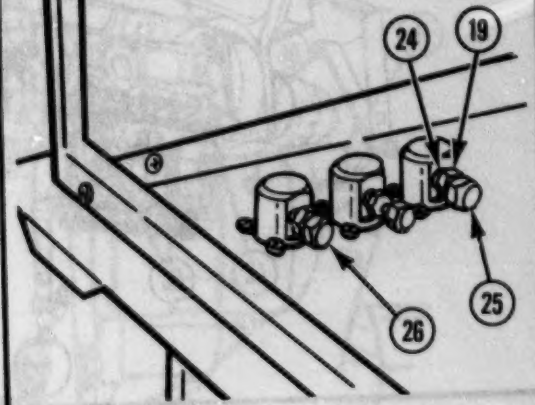


6 UNION (18). Disengage.

7 CONNECTOR (19), SHUTOFF COCK (20), NIPPLE (21), AND MALE END OF UNION (22). Remove.

8 FEMALE END OF UNION (23) AND NIPPLE (21). Remove from reducer bushing (24).





9 CONNECTOR (19). Install in reducer bushing (24).

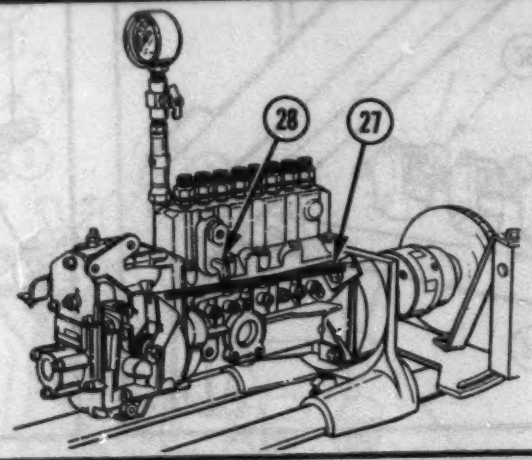
10 TWO CAPS (25 AND 26). Install.

2-18. INTERNATIONAL HARVESTER 3200 FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

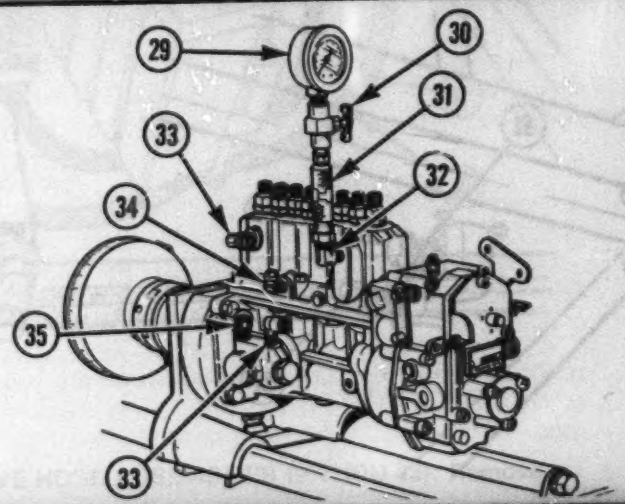
11 THROTTLE SPRING (27). Remove.

12 ELBOW (28). Remove.



13 PRESSURE GAGE (29), SHUTOFF COCK (30), HOSE ASSEMBLY (31), AND ELBOW (32). Remove.

14 TWO ELBOWS (33), ELBOW (34), AND ELBOW (35). Remove.

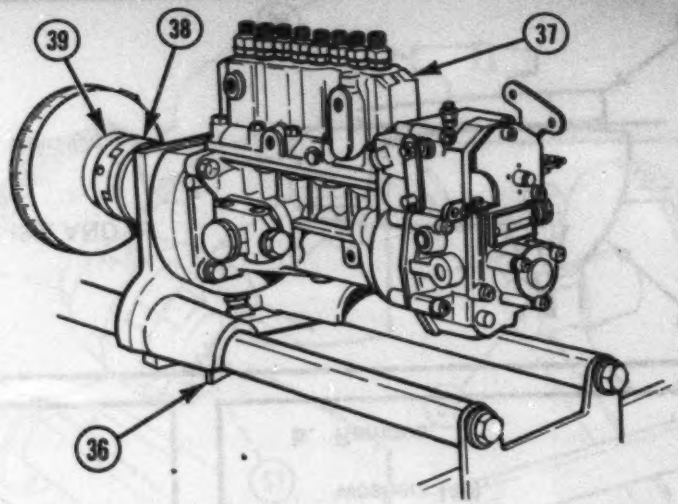


15 HAND KNOB ASSEMBLY (36). Loosen.

16 FUEL INJECTOR PUMP (37).

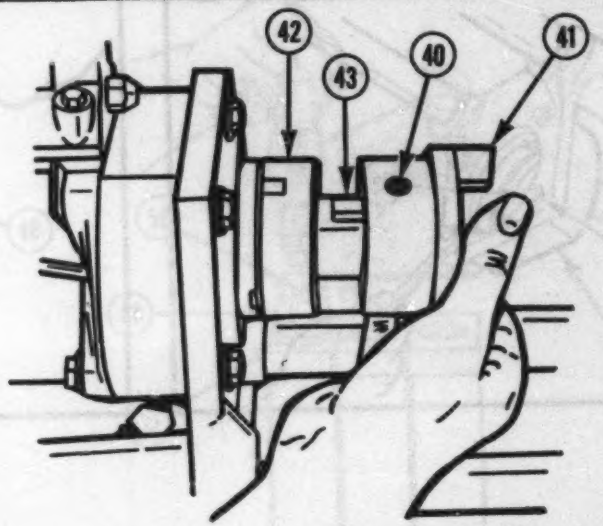
a. Pull backwards.

b. Disengage driven coupling (38) with drive coupling (39).



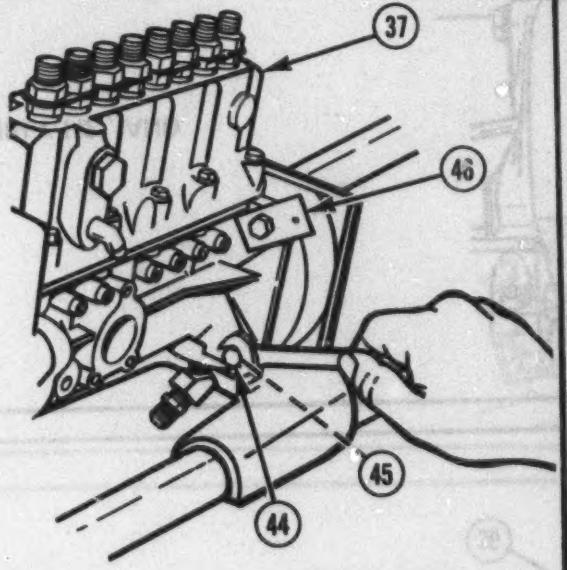
17 SETSCREW (40). Loosen.

18 DRIVEN COUPLING (41), ADAPTER ASSEMBLY (42), AND KEY (43). Remove.



2-18. INTERNATIONAL HARVESTER 3200 FUEL INJECTOR PUMP (cont)

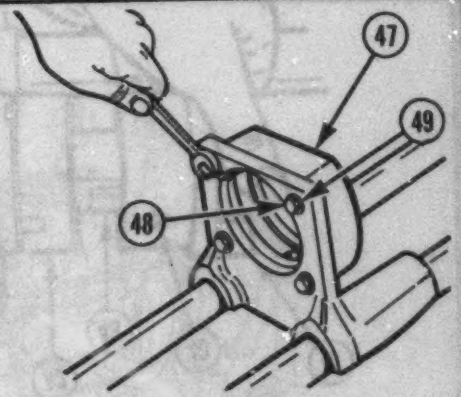
REMOVAL (cont)



19 FUEL INJECTOR PUMP (37).

a. Remove four screws (44), three washers (45), and retainer (46).

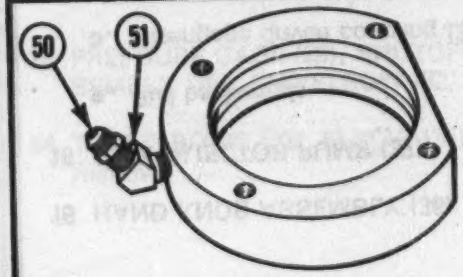
b. Remove.



20 ADAPTER RING ASSEMBLY (47).

a. Remove four screws (48) and four washers (49).

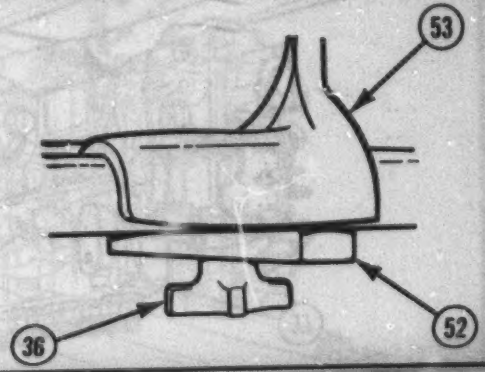
b. Remove.



21 STRAIGHT CONNECTOR (50) AND ELBOW (51). Remove.

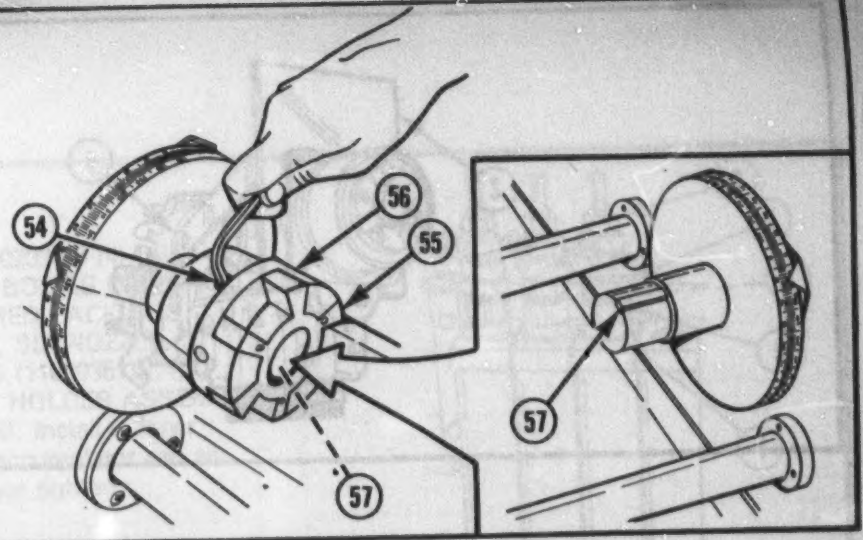
22 HAND KNOB ASSEMBLY (36) AND CLAMP BAR (52). Remove.

23 ADAPTER BRACKET (53). Remove.

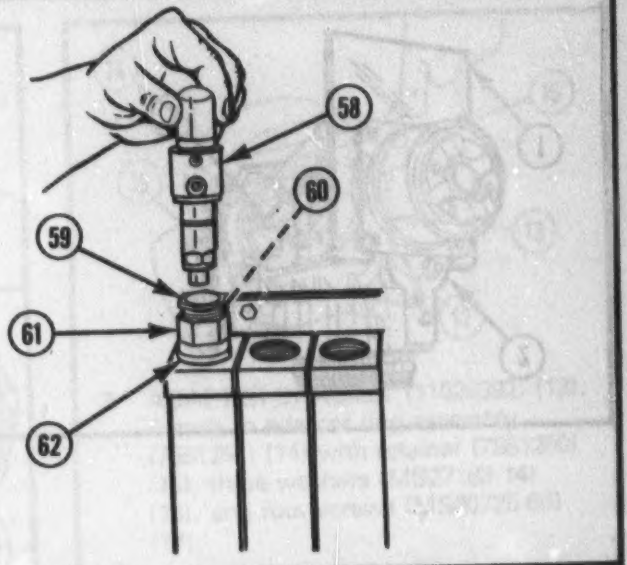


24 SETSCREW (54). Loosen.

25 FLEXIBLE COUPLING INSERT (55), DRIVE COUPLING (56), AND KEY (57). Remove.



26 EIGHT NOZZLE AND HOLDER SETS (58), EIGHT HOLDERS (59), EIGHT PREFORMED PACKINGS (60), EIGHT HOLDER BODIES (61), AND EIGHT GASKETS (62). Remove.



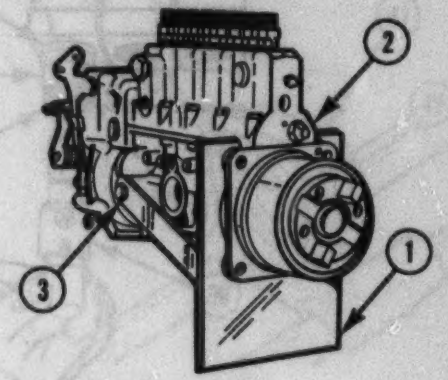
2-18. INTERNATIONAL HARVESTER 3200 FUEL INJECTOR PUMP (cont)

HOOKUP FOR STATIC ADJUSTMENT

NOTE
Pins in fixture assembly must aline with holes in the fuel injector pump.

1 FIXTURE ASSEMBLY (7551281) (1). Position on front of fuel injector pump (2).

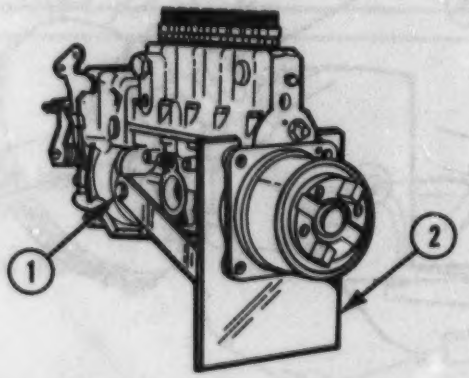
2 SCREW (3). Install.



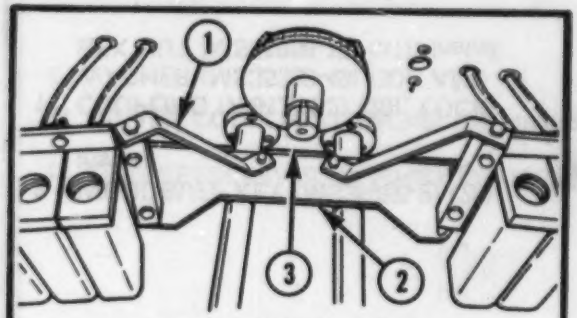
REMOVAL OF STATIC ADJUSTMENT HOOKUP

1 SCREW (1). Remove.

2 FIXTURE ASSEMBLY (2). Remove.

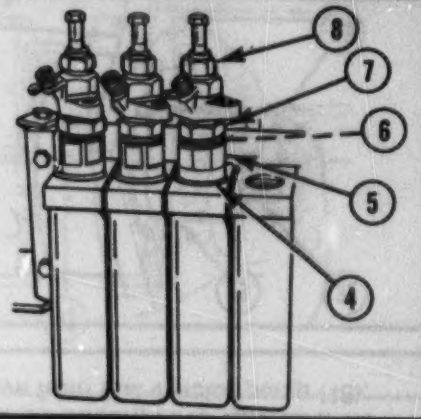


INSTALLATION



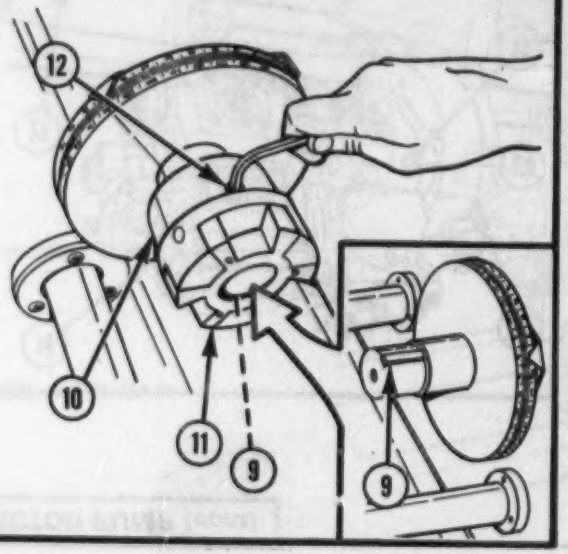
1 ACCUMULATOR MOUNTING ASSEMBLY (1). Position plate (2) 3 in. (7.62 cm) from instrument panel (3).

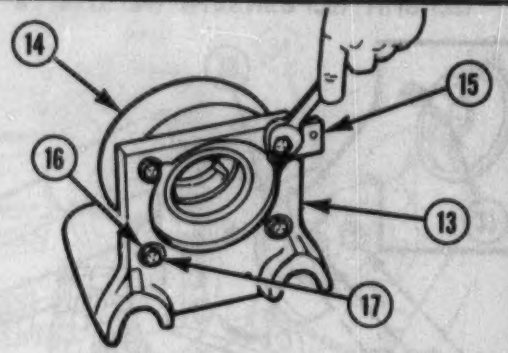
2 SIX GASKETS (11023348) (4), SIX NOZZLE HOLDER BODIES (11020350) (5), SIX PREFORMED PACKINGS (MS29513-211) (6), SIX NOZZLE HOLDER GLANDS (11020351) (7), AND SIX NOZZLE HOLDER ASSEMBLIES (7541524) (8). Install in inner three LH and RH accumulator can assemblies, but do not tighten.



3 KEY (MS20067-271) (9), DRIVE COUPLING (7551246) (10), AND FLEXIBLE COUPLING INSERT (L110S0X) (11). Install.

4 SETSCREW (MS51963-85) (12). Tighten.





5 ADAPTER BRACKET (11020392) (13). Attach to adapter ring assembly (7551251) (14) with retainer (7551250) (15), three washers (MS27183-14) (16), and four screws (MS90725-60) (17).

2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

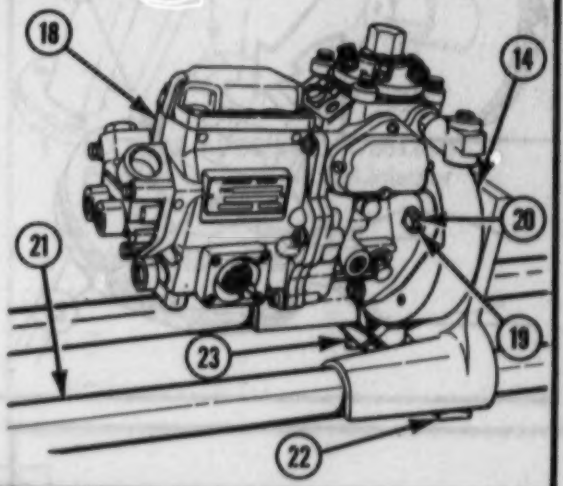
INSTALLATION (cont)

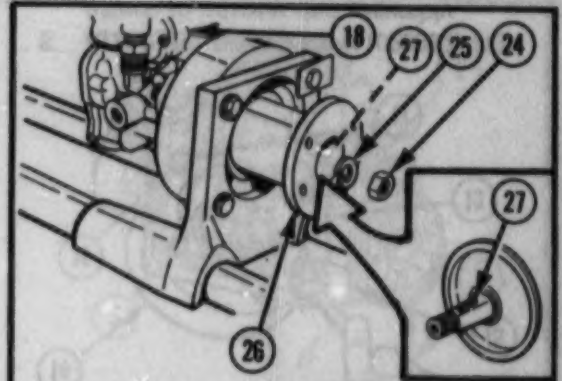
6 FUEL INJECTOR PUMP (18).

a. Attach to adapter ring assembly (14) with three washers (MS27183-14) (19) and three screws (MS90725-60) (20).

b. Place on back of mounting rails (21).

7 CLAMP BAR (11020262) (22) AND HAND KNOB ASSEMBLY (11020266) (23). Install.

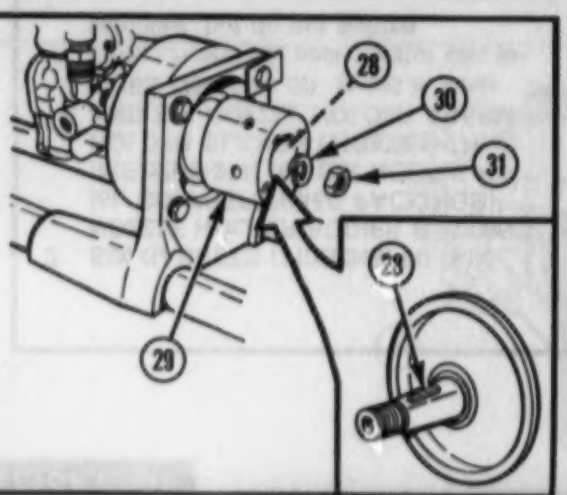


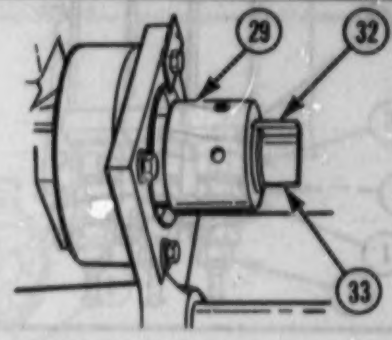


8 NUT (24), WASHER (25), HUB (26) WITH PULLER, AND KEY (27). Remove from fuel injector pump (18).

9 WOODRUFF KEY (MS35756-9) (28). Install.

10 COUPLING (7551244-2) (29), LOCKWASHER (MS35338-49) (30), AND HEX NUT (MS51968-17) (31). Install.



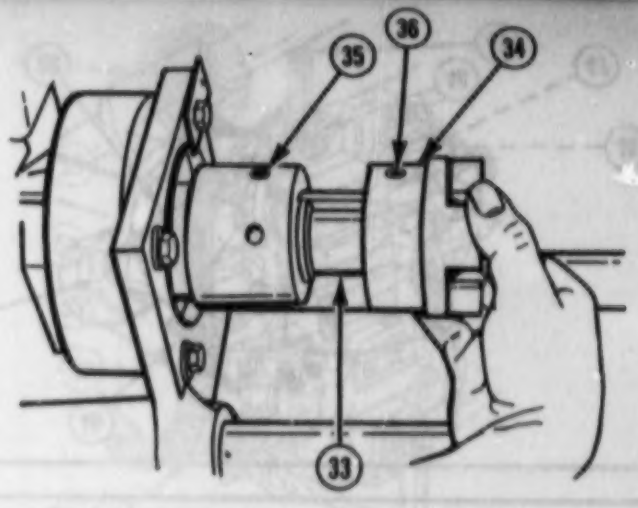


11 KEY (MS20066-410) (32). Install in shaft (7551245) (33).

12 SHAFT (33). Install in coupling (29).

13 DRIVEN COUPLING (7551246) (34). Install on shaft (33).

14 TWO SETSCREWS (MS51963-103) (35 AND 36). Tighten.



15 HAND KNOB ASSEMBLY (23). Loosen.

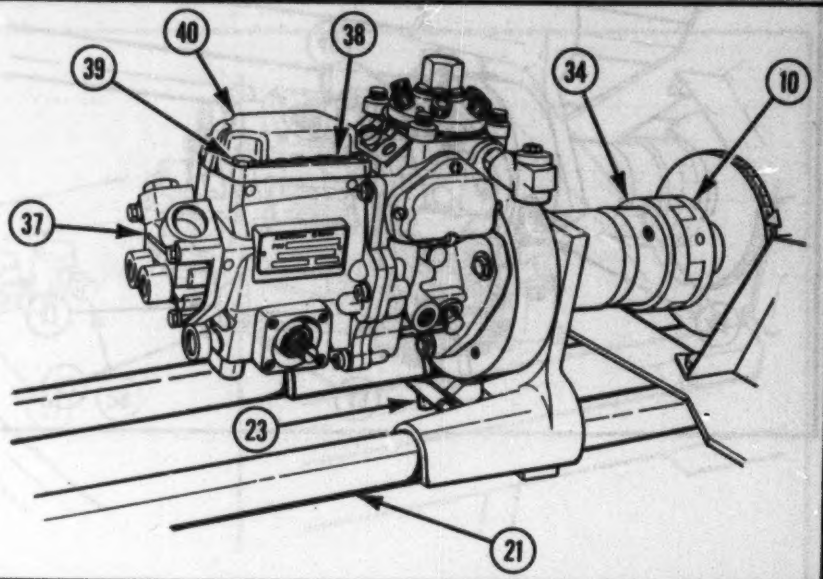
16 FUEL INJECTOR PUMP (37).

a. Slide forward on mounting rails (21).

b. Engage driven coupling (34) with drive coupling (10) leaving 1/16-in. (0.159-cm) gap.

17 HAND KNOB ASSEMBLY (23). Tighten.

18 TWO LOCK WIRES (38), FOUR SCREWS (39), AND CAP (40). Remove.

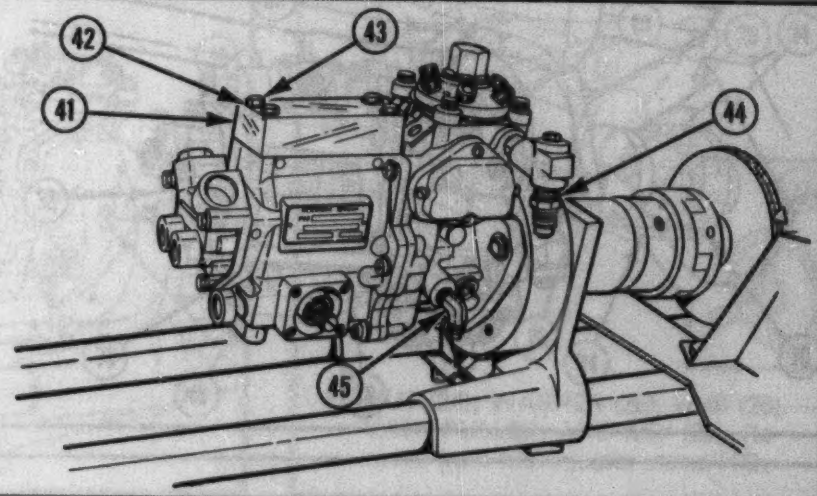


2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

19 CAP ASSEMBLY (7551241) (41), FOUR FLAT WASHERS (MS27183-10) (42), AND FOUR SCREWS (MS90725-13) (43). Install.

20 STRAIGHT CONNECTOR (8-4 010102) (44) AND ELBOW (4-4 010202) (45). Install.



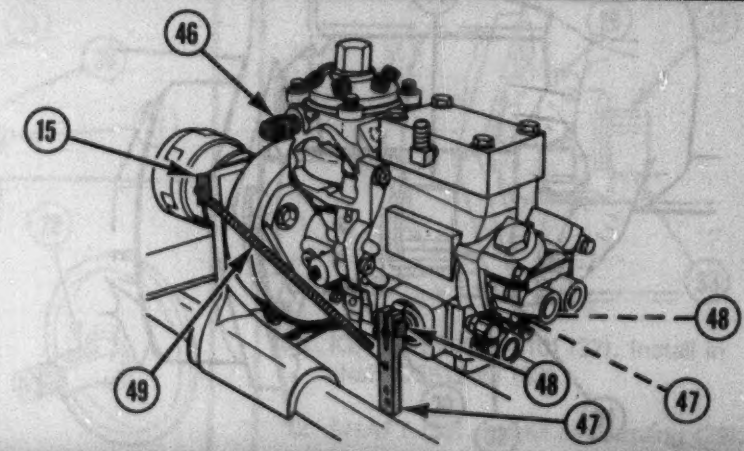
21 TUBE ADAPTER (MS39158-5) (46). Install.

22 TWO LEVER ASSEMBLIES (7551248) (47).

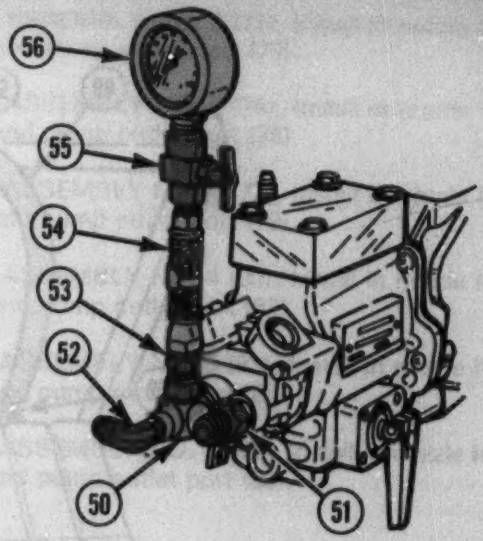
a. Install.

b. Tighten two nuts (48).

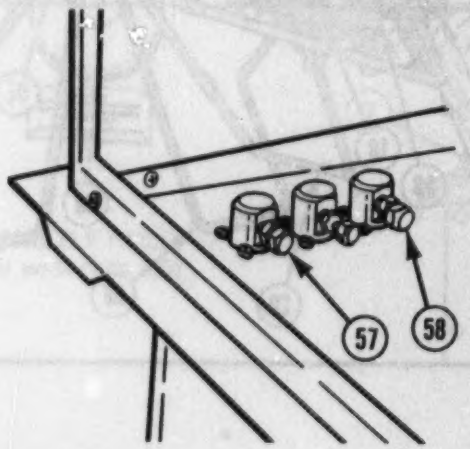
23 THROTTLE SPRING (11020442) (49). Install on retainer (15) and lever assembly (47).

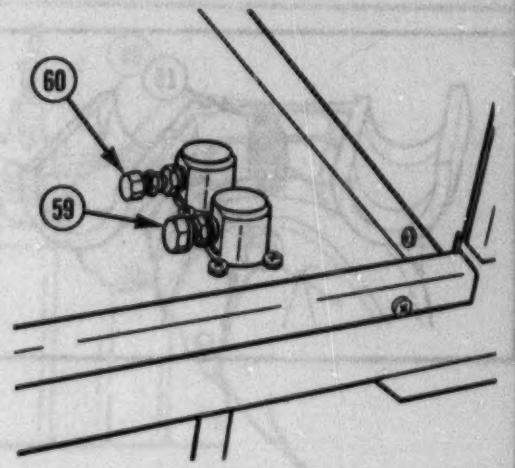


24 PIPE TEE (4-4-4 140424) (50), STRAIGHT CONNECTOR (8-4 010102) (51), ELBOW (MS39162-5) (52), TUBE ADAPTER (MS39158-5) (53), HOSE (7550081-9) (54), SHUTOFF COCK (MS35934-2) (55), AND PRESSURE GAGE (7551253) (56). Install.



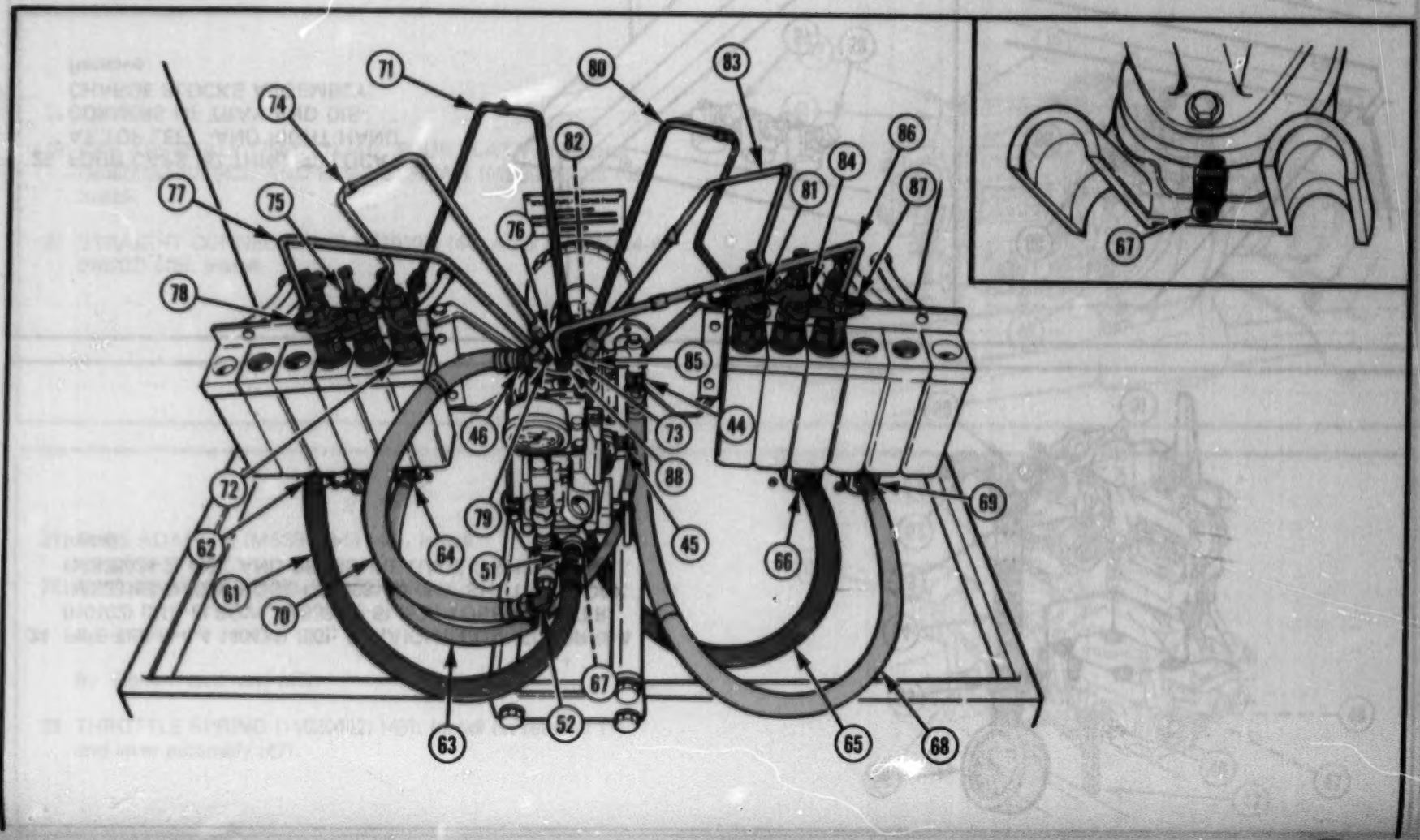
25 FOUR CAPS (57 THRU 60) LOCATED AT TOP LEFT -AND RIGHT-HAND CORNERS OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.





2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash number.

26 HOSE ASSEMBLY -2 (61). Install on fuel pressure connector (62) and straight connector (51).

27 HOSE ASSEMBLY -1 (63). Install on lube oil pressure connector (64) and elbow (45).

28 HOSE ASSEMBLY -15 (65). Install on lube oil return connector (66) and connector (67) on adapter ring assembly.

29 HOSE ASSEMBLY -3 (68). Install on fuel return connector (69) and straight connector (44).

30 HOSE ASSEMBLY -6 (70). Install on elbow (52) and tube adapter (46).

31 LINE ASSEMBLY NO. 3 (71). Install in nozzle holder assembly (72) and pump outlet port (73).

32 LINE ASSEMBLY NO. 2 (74). Install in nozzle holder assembly (75) and pump outlet port (76).

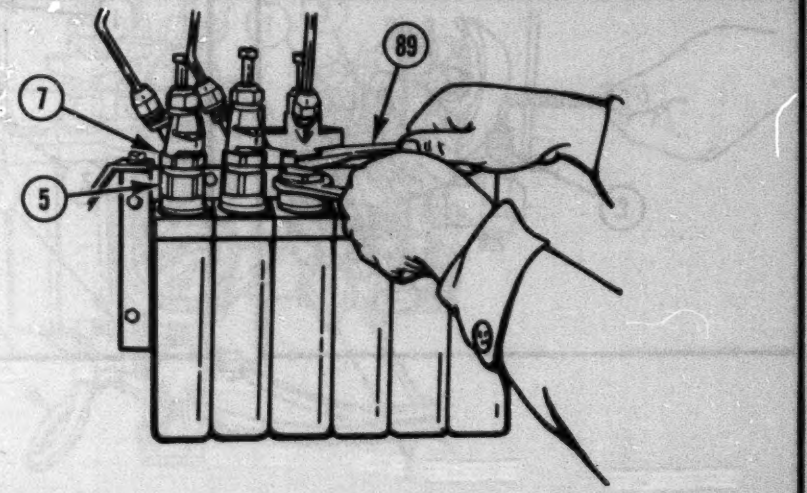
33 LINE ASSEMBLY NO. 1 (77). Install in nozzle holder assembly (78) and pump outlet port (79).

34 LINE ASSEMBLY NO. 4 (80). Install in nozzle holder assembly (81) and pump outlet port (82).

35 LINE ASSEMBLY NO. 5 (83). Install in nozzle holder assembly (84) and pump outlet port (85).

36 LINE ASSEMBLY NO. 6 (86). Install in nozzle holder assembly (87) and pump outlet port (88).

37 SIX NOZZLE HOLDER BODIES (5) AND SIX NOZZLE HOLDER GLANDS (7). Tighten using nozzle adapter wrenches (89).

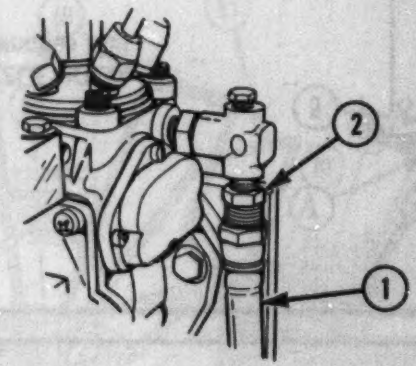


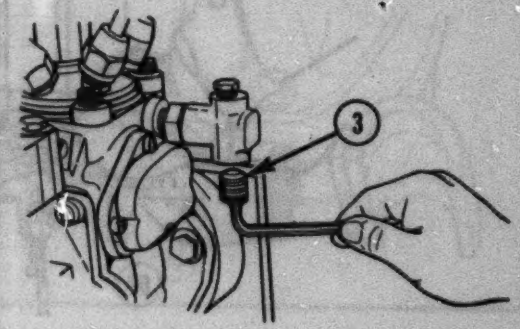
2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

HOOKUP FOR LEAKAGE TEST

1 HOSE ASSEMBLY -3 (1). Remove from straight connector (2).

2 STRAIGHT CONNECTOR (2). Remove.

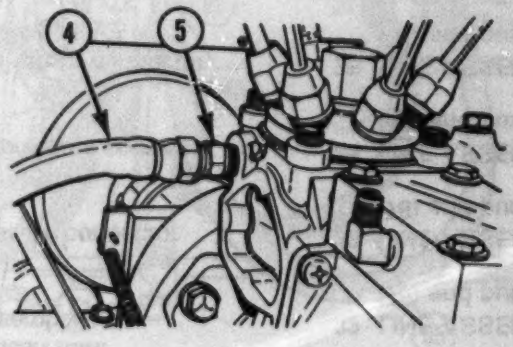


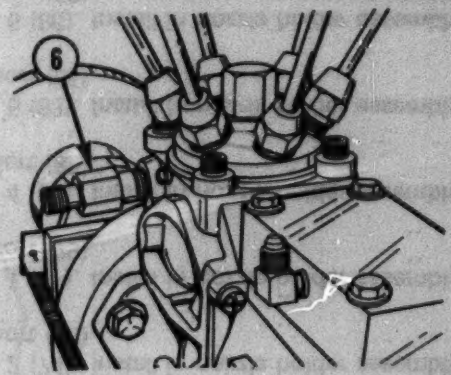


3 PLUG (MS49005-4) (3). Install.

4 HOSE ASSEMBLY -6 (4). Remove from tube adapter (5).

5 TUBE ADADPTER (5). Remove.



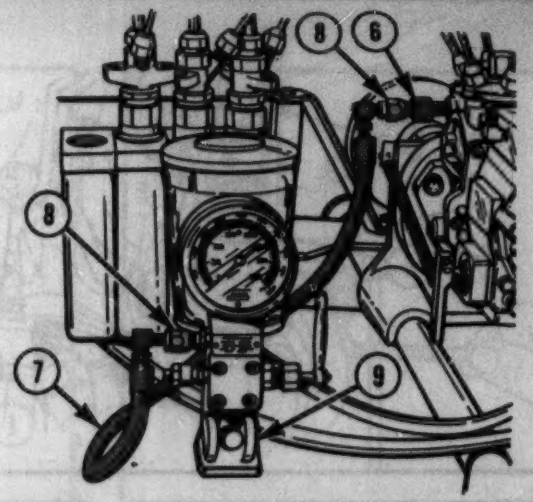


6 G-7 CONNECTOR (6), COMPONENT OF NOZZLE TESTER. Install.

7 HOSE ASSEMBLY (7).

a. Install one end on G-7 connector (6) using G-1 nut (8).

b. Install other end on nozzle tester (9) using G-1 nut (8).

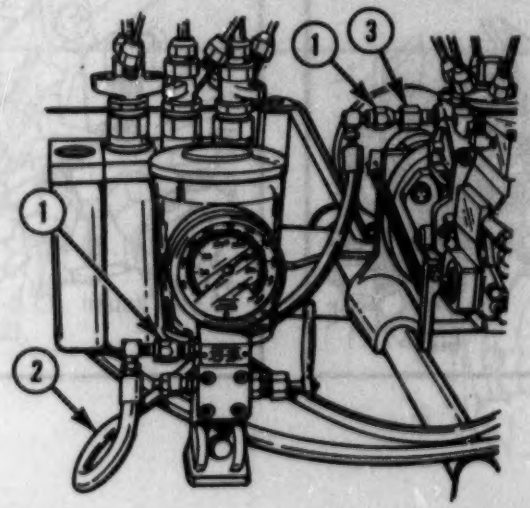


REMOVAL OF LEAKAGE TEST HOOKUP

1 TWO G-1 NUTS (1). Remove.

2 HOSE ASSEMBLY (2). Remove.

3 G-7 CONNECTOR (3). Remove.

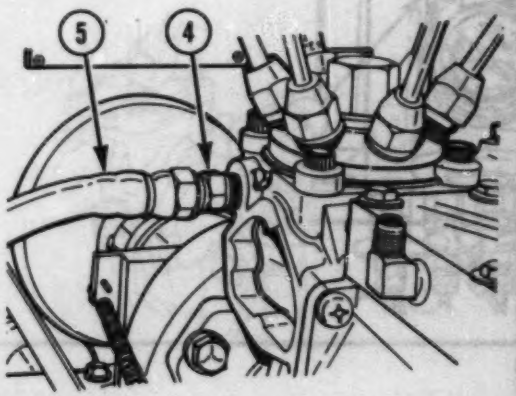


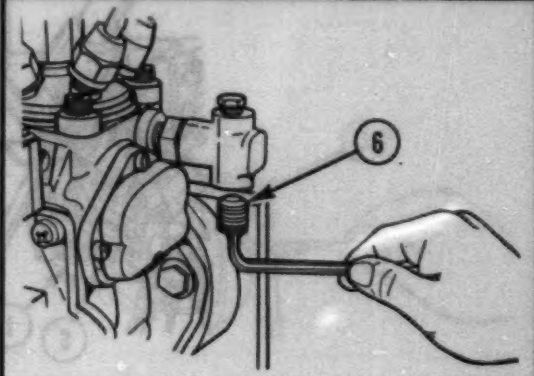
2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

REMOVAL OF LEAKAGE TEST HOOKUP (cont)

4 TUBE ADAPTER (4). Install.

5 HOSE ASSEMBLY -6 (5). Install on tube adapter (4).

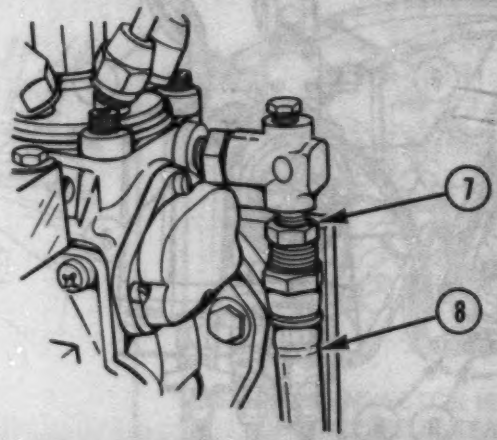




6 PLUG (6). Remove.

7 STRAIGHT CONNECTOR (7). Install.

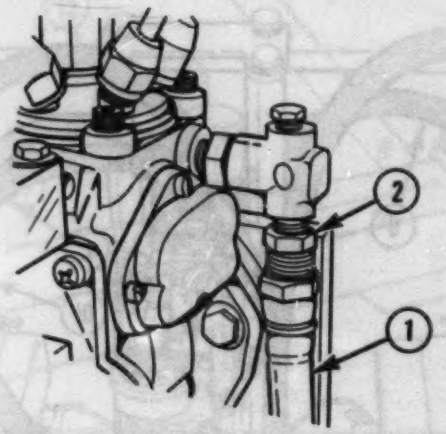
8 HOSE ASSEMBLY -3 (8). Install on straight connector (7).

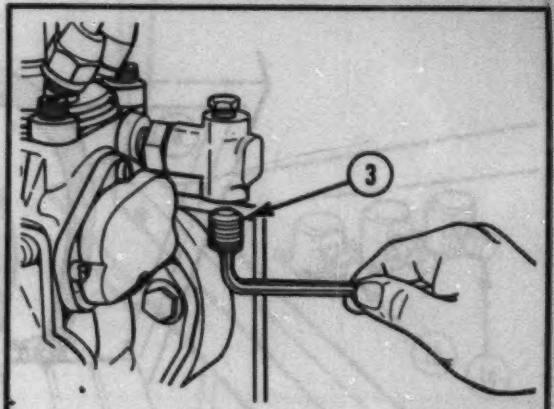


HOOKUP FOR SUPPLY PUMP TEST

1 HOSE ASSEMBLY -3 (1). Remove from straight connector (2).

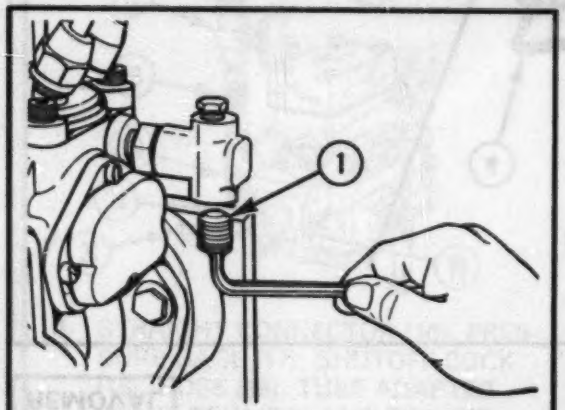
2 STRAIGHT CONNECTOR (2). Remove.





3 PLUG (MS49005-4) (3). Install.

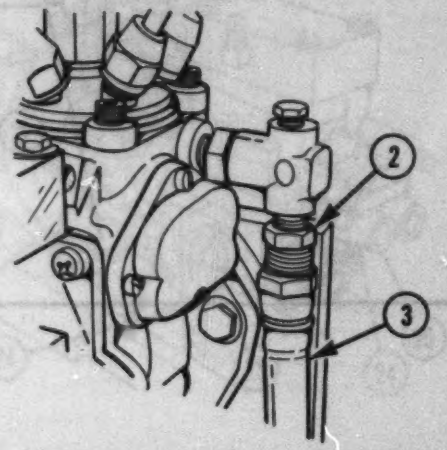
REMOVAL OF SUPPLY PUMP TEST HOOKUP



1 PLUG (1). Remove.

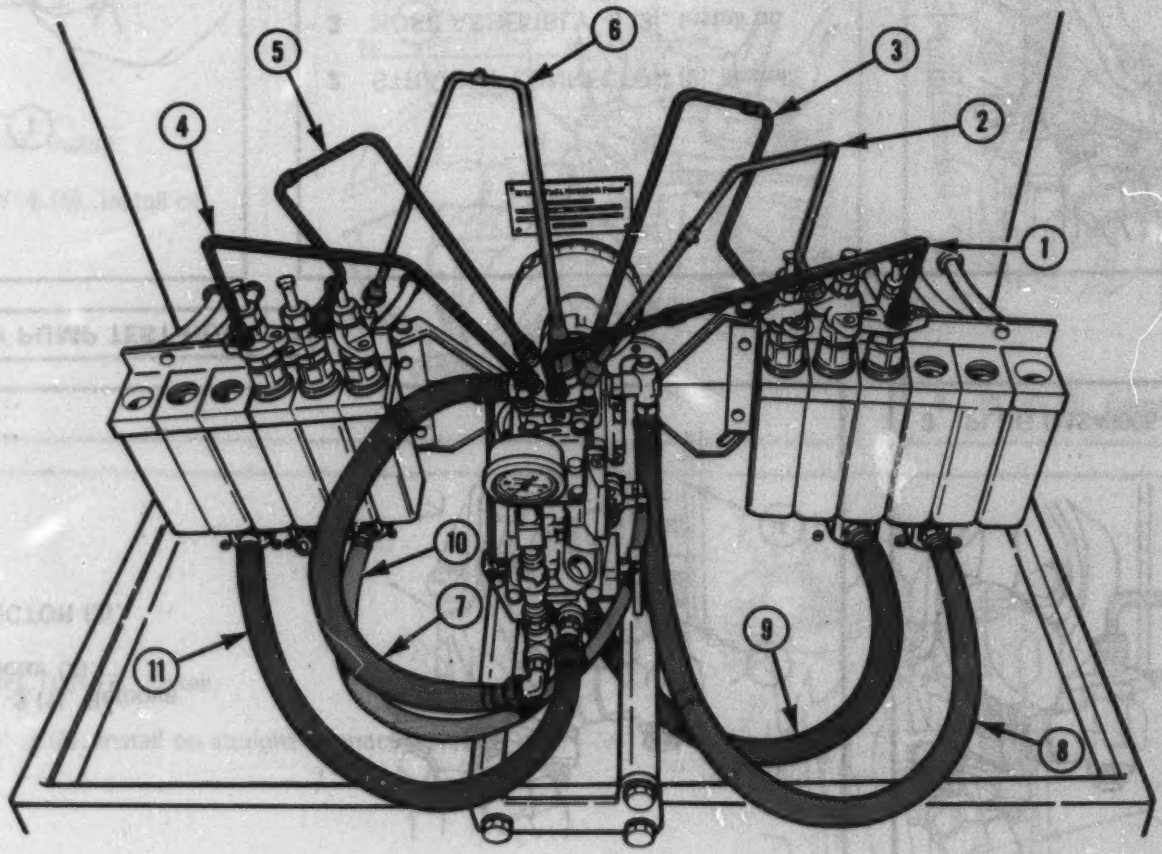
2 STRAIGHT CONNECTOR (2). Install.

3 HOSE ASSEMBLY -3 (3). Install on straight connector (2).



2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

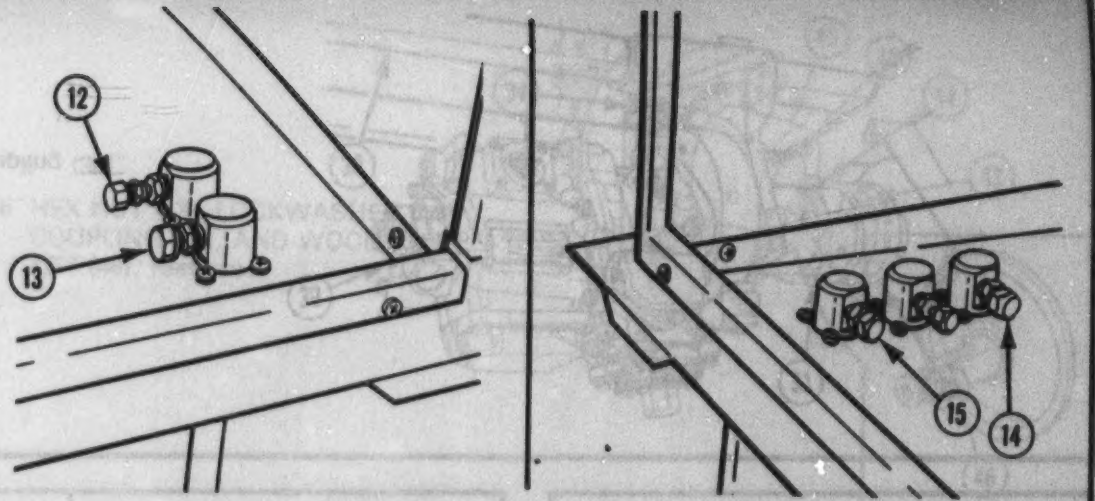
REMOVAL

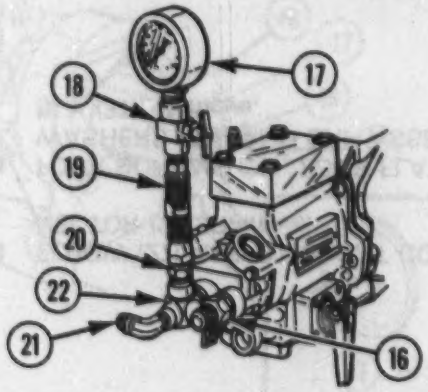


1 SIX LINE ASSEMBLIES (1 THRU 6). Remove.

2 FIVE HOSE ASSEMBLIES (7 THRU 11). Remove.

3 FOUR CAPS (12 THRU 15). Install.





4 STRAIGHT CONNECTOR (16), PRESSURE GAGE (17), SHUTOFF COCK (18), HOSE (19), TUBE ADADPTER (20), ELBOW (21), AND PIPE TEE (22). Remove.

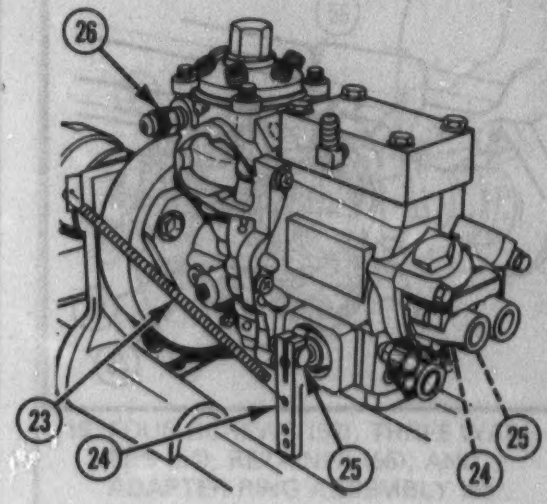
5 THROTTLE SPRING (23). Remove.

6 TWO LEVER ASSEMBLIES (24).

a. Loosen two nuts (25).

b. Remove.

7 TUBE ADAPTER (26). Remove.

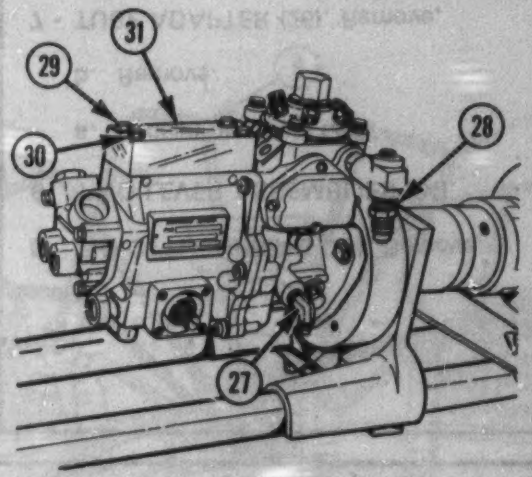


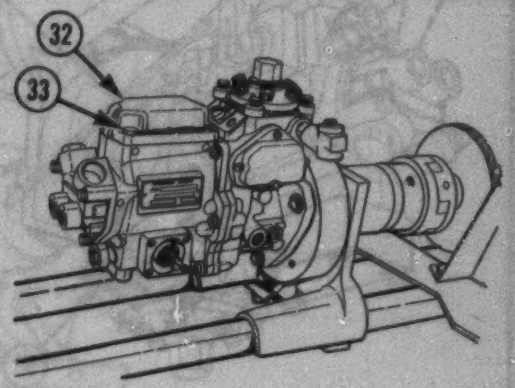
2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

8 ELBOW (27) AND STRAIGHT CONNECTOR (28). Remove.

9 FOUR SCREWS (29), FOUR FLAT WASHERS (30), AND CAP ASSEMBLY (31). Remove.





10 CAP (32) AND FOUR SCREWS (33). Install.

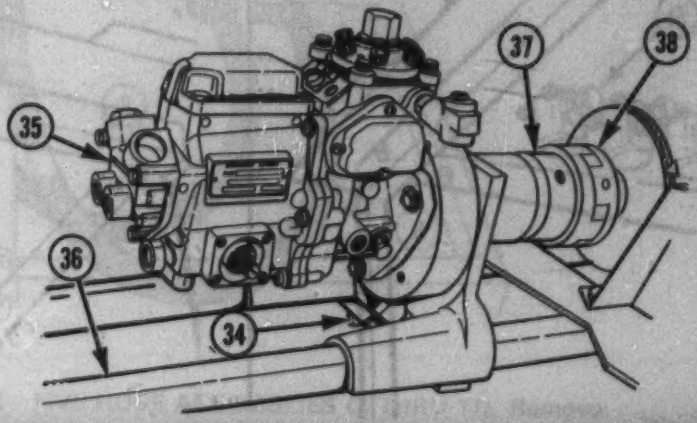
11 HAND KNOB ASSEMBLY (34). Loosen.

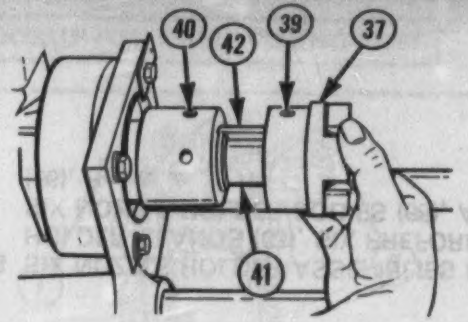
12 FUEL INJECTOR PUMP (35).

a. Pull back on mounting rails (36).

b. Disengage driven coupling (37) from drive coupling (38).

13 HAND KNOB ASSEMBLY (34). Tighten.

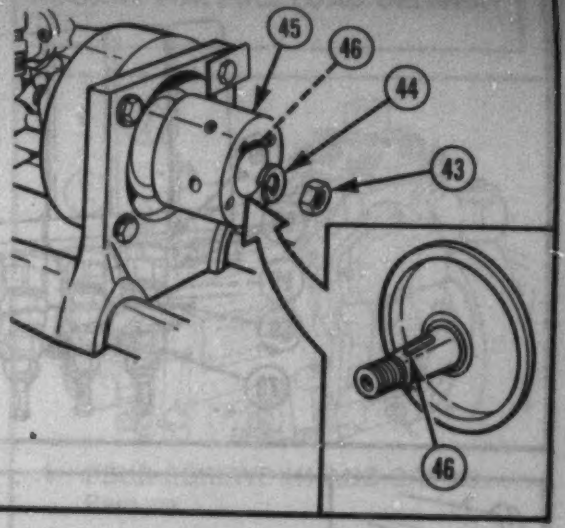


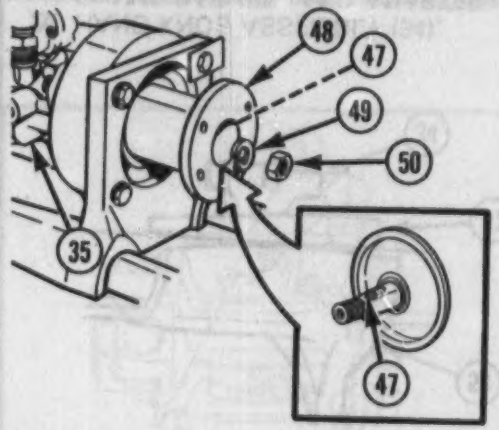


14 TWO SETSCREWS (39 AND 40). Loosen.

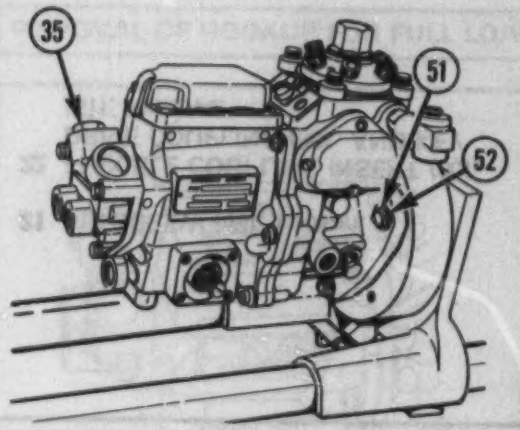
15 DRIVEN COUPLING (37), SHAFT (41), AND KEY (42). Remove.

16 HEX NUT (43), LOCKWASHER (44), COUPLING (45), AND WOODRUFF KEY (46). Remove.

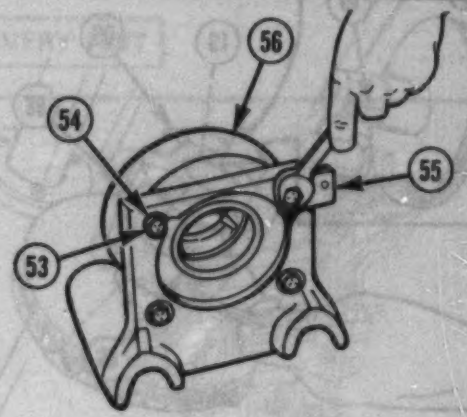




17 KEY (47), HUB (48) WITH PULLER, WASHER (49), AND NUT (50). Install on fuel injector pump (35).



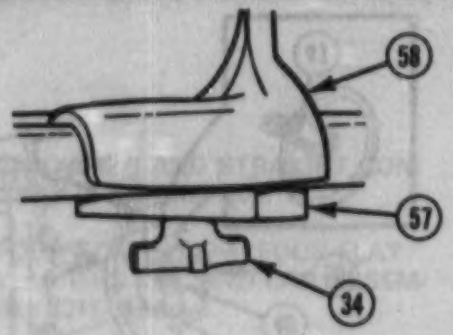
18 THREE SCREWS (51), THREE WASHERS (52), AND FUEL INJECTOR PUMP (35). Remove.



19 FOUR SCREWS (53), THREE WASHERS (54), RETAINER (55), AND ADAPTER RING ASSEMBLY (56). Remove.

2-19. AMERICAN BOSCH PSJ-6A FUEL INJECTOR PUMP (cont)

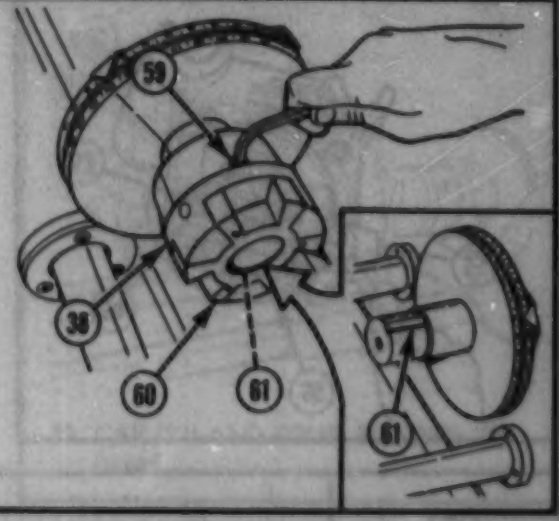
REMOVAL (cont)



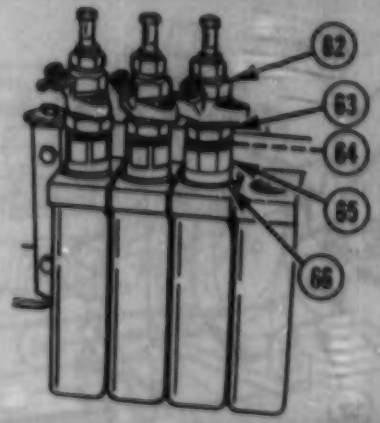
20 HAND KNOB ASSEMBLY (34), CLAMP BAR (57), AND ADAPTER BRACKET (58). Remove.

21 SETSCREW (59). Loosen.

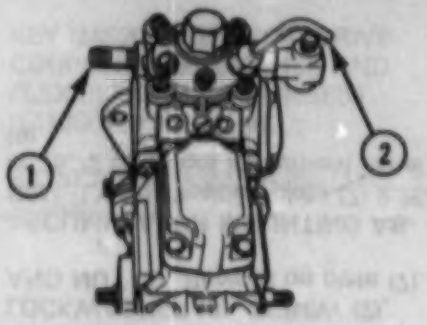
22 FLEXIBLE COUPLING INSERT (60), DRIVE COUPLING (38), AND KEY (61). Remove.



23 SIX NOZZLE HOLDER ASSEMBLIES (62), SIX NOZZLE HOLDER GLANDS (63), SIX PREFORMED PACKINGS (64), SIX NOZZLE HOLDER BODIES (65), AND SIX GASKETS (66). Remove.

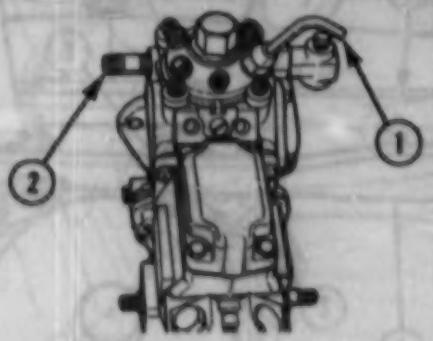


HOOKUP FOR PUMP TIMING TEST



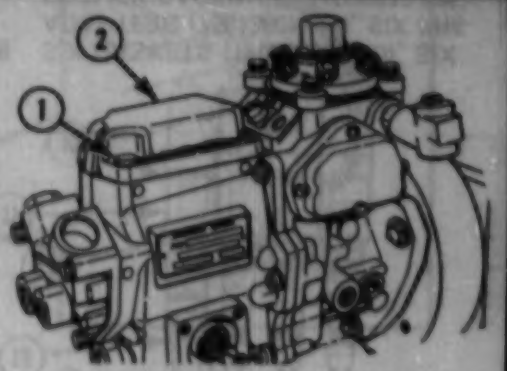
NIPPLE (MS51953-29) (1) AND PORT CLOSING ADAPTER (7551313) (2). Install.

REMOVAL OF HOOKUP FOR PUMP TIMING TEST



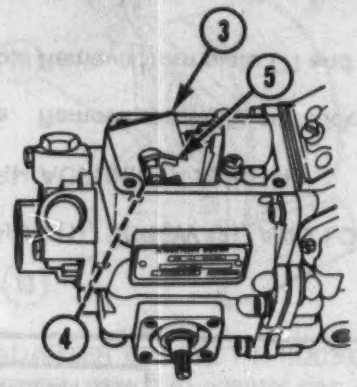
PORT CLOSING ADAPTER (1) AND NIPPLE (2). Remove.

HOOKUP FOR FULL LOAD DELIVERY TEST

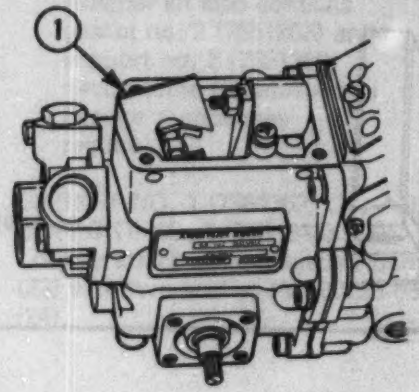


1 FOUR SCREWS (1) AND CAP (2). Remove.

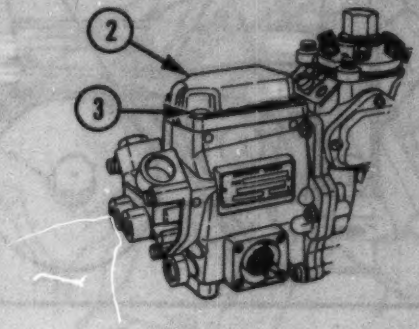
REMOVAL OF HOOKUP FOR FULL LOAD DELIVERY TEST



2 GAGE (7551315) (3). Install between cam (4) and lever (5).



1 GAGE (1). Remove.



2 CAP (2) AND FOUR SCREWS (3). Install.

2-20. CATERPILLAR FUEL INJECTOR PUMP

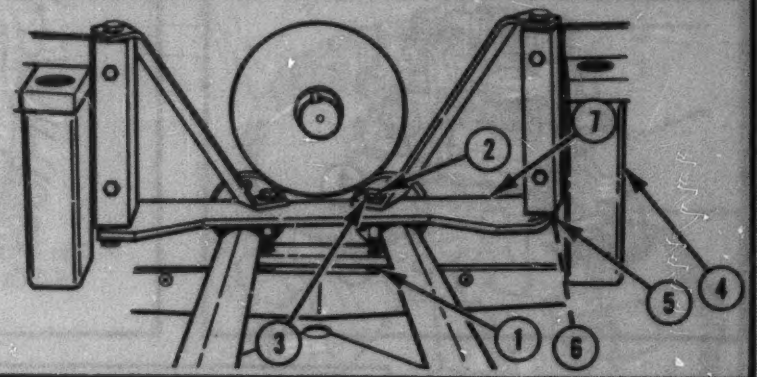
INSTALLATION

1 NUT (1), SCREW (2), AND LOCKWASHER (3). Remove.

2 RH ACCUMULATORS (4).

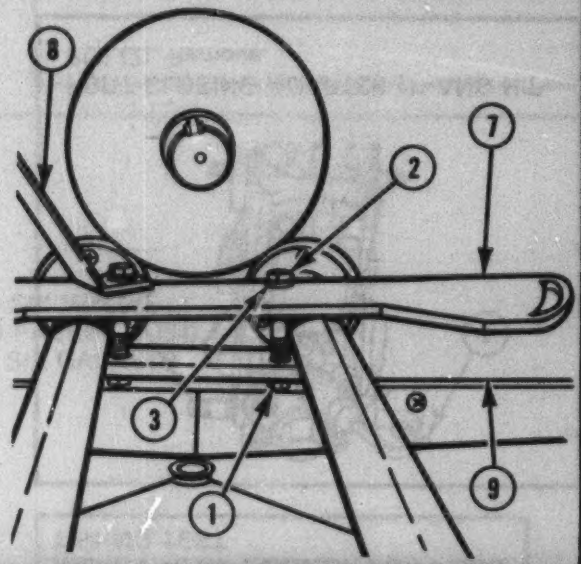
a. Remove screw (5) and lockwasher (6).

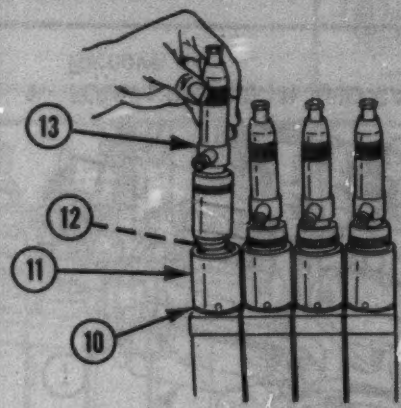
b. Remove from plate (7) and push aside.



3 LOCKWASHER (3), SCREW (2), AND NUT (1). Replace on plate (7).

4 ACCUMULATOR MOUNTING ASSEMBLY (8). Position plate (7) 2.25 in. (5.72 cm) from instrument panel (9).

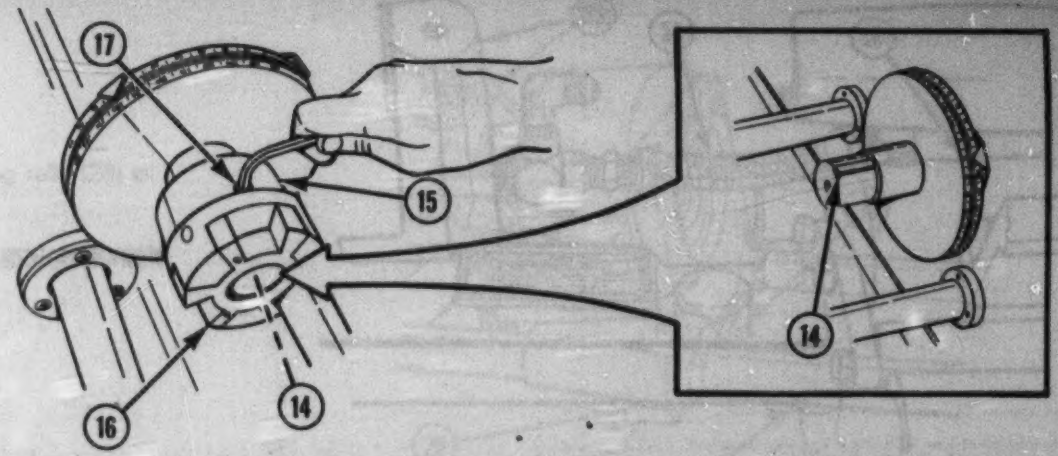


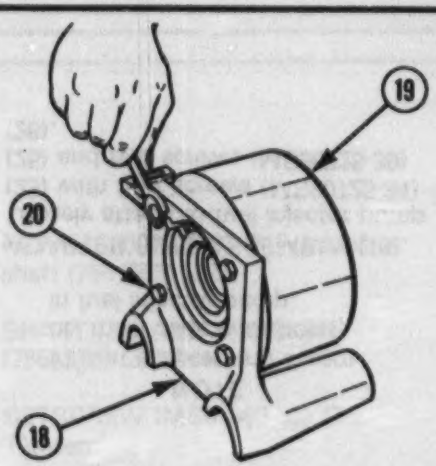


5 SIX GASKETS (11020348) (10), SIX ADAPTERS (7551360) (11), SIX PREFORMED PACKINGS (MS29513-325) (12), AND SIX VALVE ASSEMBLIES (7551361) (13). Install.

6 KEY (MS20067-271) (14), DRIVE COUPLING (7551246) (15), AND FLEXIBLE COUPLING INSERT (L110S0X) (16). Install.

7 SETSCREW (MS51963-85) (17). Tighten.



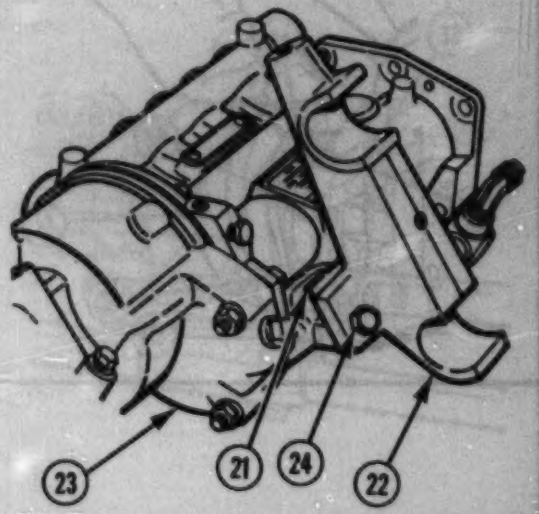


8 ADAPTER BRACKET (11020392) (18). Loosely attach to adapter ring assembly (7551345) (19) with four screws (MS90725-60) (20).

NOTE

Adapter kit also contains gasket no. 2 (7551353) and support no. 2 (7551350) which some Caterpillar fuel injector pumps may require.

9 GASKET NO. 1 (7551352) (21) AND SUPPORT NO. 1 (7551348) (22). Loosely attach to fuel injector pump (23) with two screws (MS90725-58) (24).

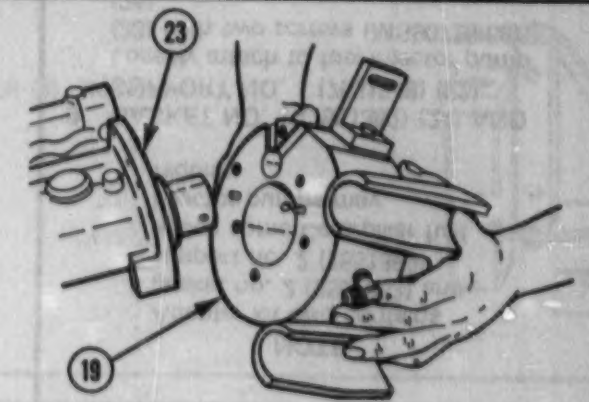


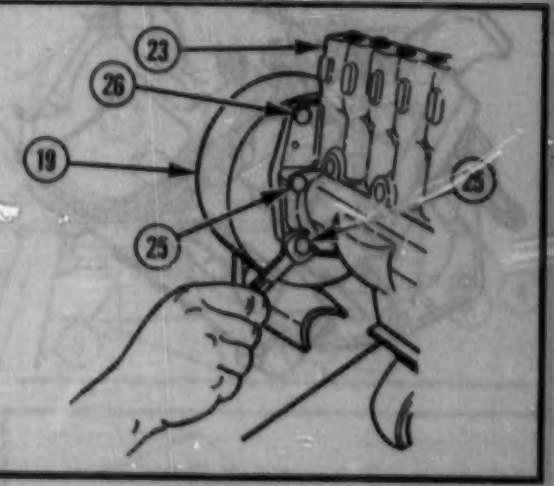
2-20. CATERPILLAR FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

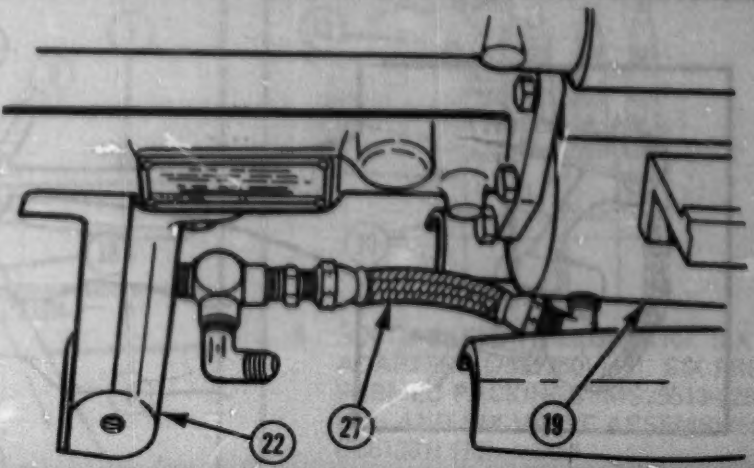
NOTE
Pins in adapter ring assembly must aline with holes in fuel injector pump.

10 ADAPTER RING ASSEMBLY (19). Loosely attach to fuel injector pump (23) with four screws (MS90725-34) (25) and two screws (MS90725-39) (26).



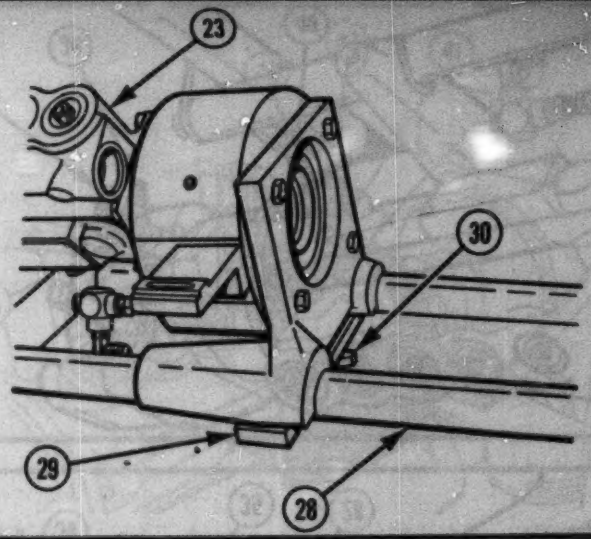


11 OIL DRAIN HOSE (27). Install in support no. 1 (22) and adapter ring assembly (19).



12 FUEL INJECTOR PUMP (23). Place on mounting rails (28) at the back.

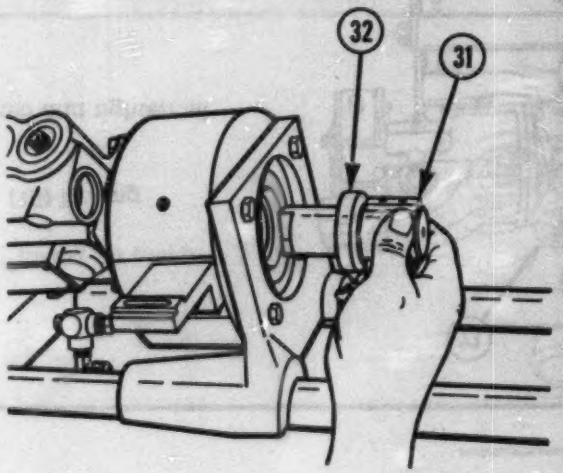
13 CLAMP BAR (11020262) (29) AND HAND KNOB ASSEMBLY (11020266) (30). Install.

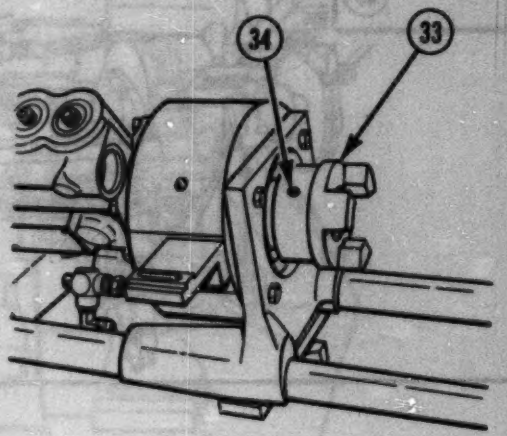


14 KEY (MS20066-403) (31). Install in shaft (7551355) (32).

15 SHAFT (32) AND COUPLING (7551229) (33). Install.

16 SETSCREW (MS51963-85) (34). Tighten.





2-20. CATERPILLAR FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

17 HAND KNOB ASSEMBLY (30). Loosen.

18 FUEL INJECTOR PUMP (23).

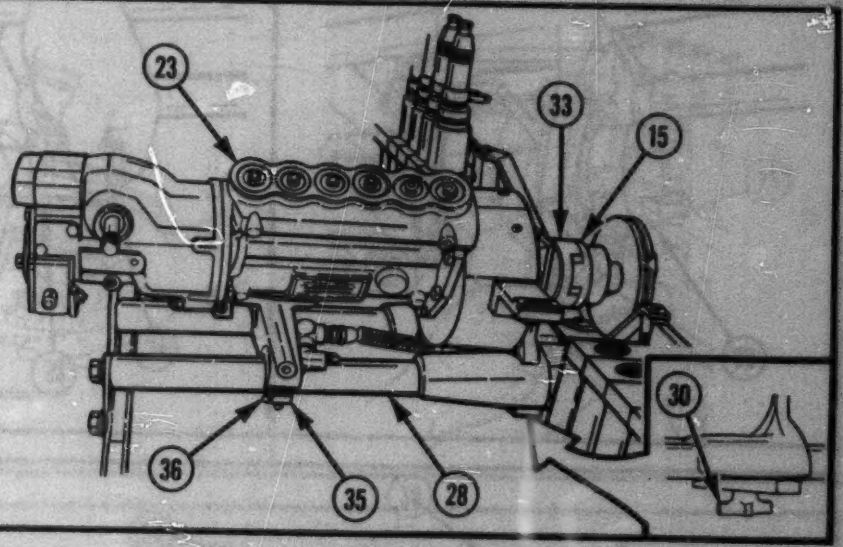
a. Slide forward on mounting rails (28).

b. Engage coupling (33) with drive coupling (15) leaving 1/16-in. (0.159-cm) gap.

c. Ensure fuel injector pump is properly seated and tighten all screws.

19 HAND KNOB ASSEMBLY (30). Tighten.

20 REAR CLAMP BAR (35) AND HAND KNOB ASSEMBLY (36). Install and tighten hand knob assembly.

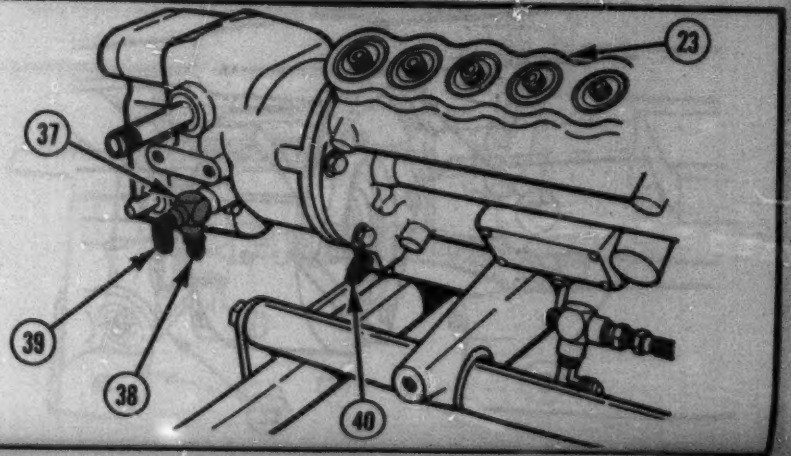


NOTE

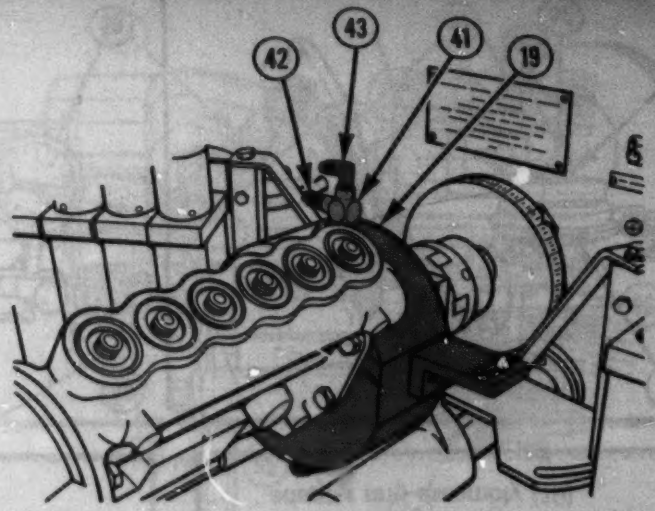
If Caterpillar fuel injector pump does not require an external oil line for governor interlock, omit step 21.

21 PIPE TEE (2-2-2 140424) (37), TUBE ADAPTER (MS39158-3) (38), AND ELBOW (MS39162-3) (39). Install on fuel injector pump (23).

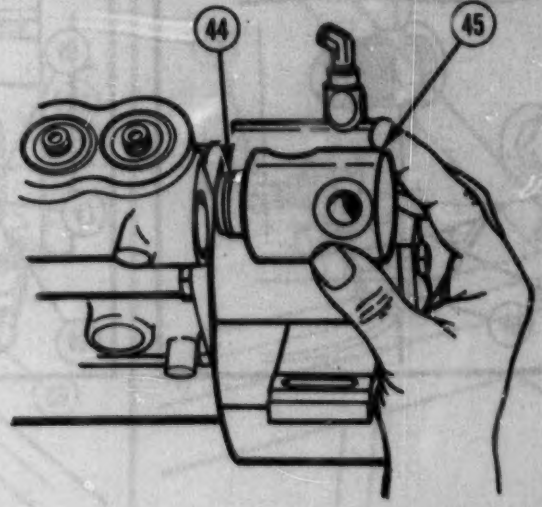
22 TUBE ADAPTER (MS39158-3) (40). Install.



23 PIPE TEE (2-2-2 140424) (41), TUBE ADAPTER (MS39158-3) (42), AND ELBOW (MS39162-3) (43). Install in adapter ring assembly (19).



24 PREFORMED PACKING (MS28775-119) (44). Install on fuel inlet adapter (7551356) (45).



2-20. CATERPILLAR FUEL INJECTOR PUMP (cont)

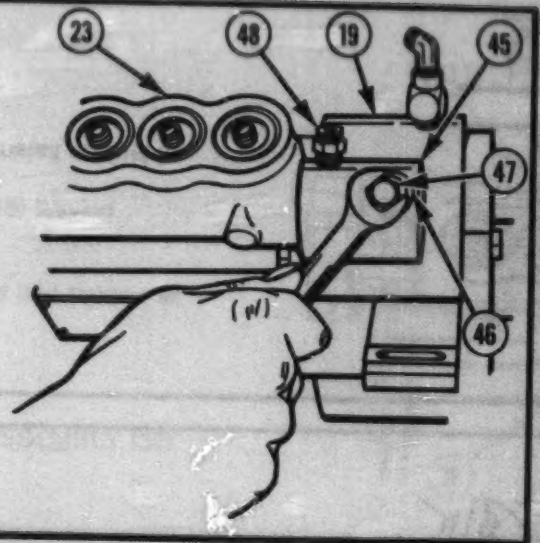
INSTALLATION (cont)

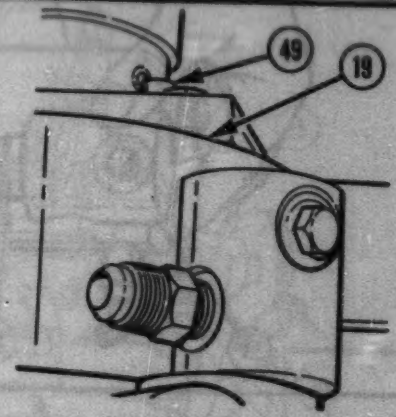
25 FUEL INLET ADAPTER (45).

a. Install in fuel injector pump (23).

b. Install washer (MS27183-15) (46) and screw (MS90225-68) (47) through hole and into adapter ring assembly (19).

c. Install straight connector (8-6 010102) (48).

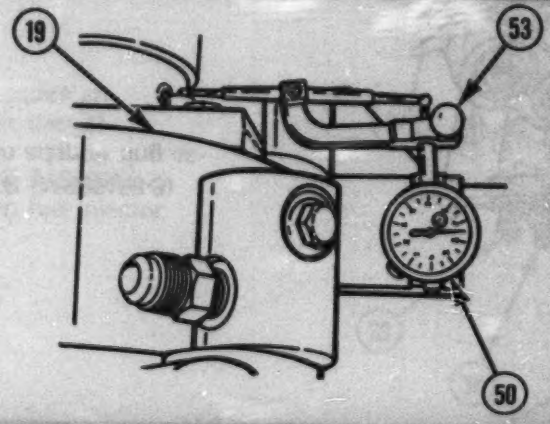


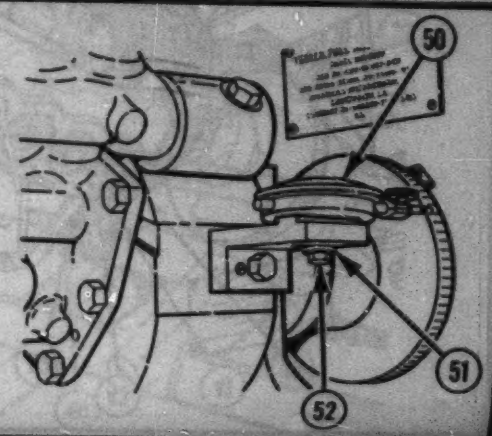


26 GAGE ROD (7551358) (49). Insert in adapter ring assembly (19).

27 DIAL INDICATOR (MIL-I-18422, type 3 CL) (50). Attach to adapter ring assembly (19) with washer (MS27183-11) (51) and screw (MS90725-6) (52).

28 HOLE ATTACHMENT (MIL-I-18422, type 4) (53). Install on dial indicator (50).





29 LEVER ASSEMBLY (7552398) (54), CAPSCREW (MS90726-10) (55), AND HEX NUT (MS35691-5) (56). Install.

30 ROD HOLDER (7551363) (57), SHOULDER SCREW (MS51975-28) (58), AND HAND KNOB ASSEMBLY (11020266) (59). Install.

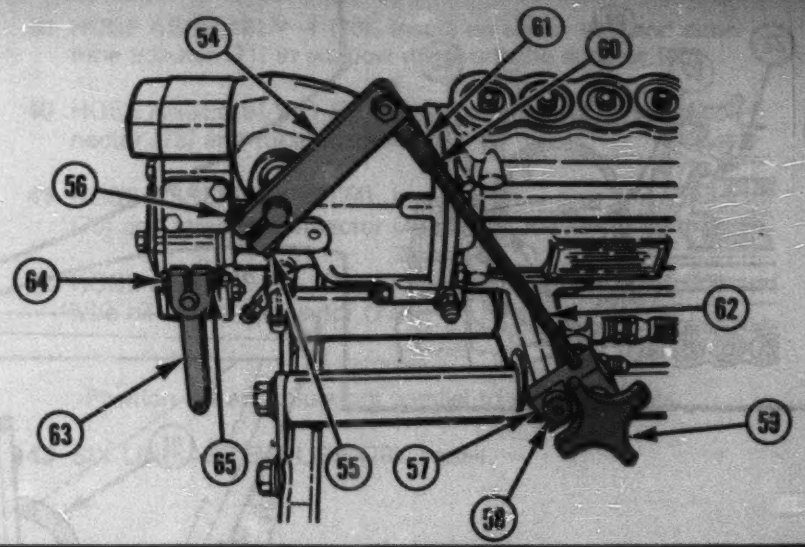
31 HEX NUT (MS35691-5) (60) AND CLEVIS (MS35812-2) (61). Install on governor control rod (7551365) (62).

32 CLEVIS (61). Install on lever assembly (54).

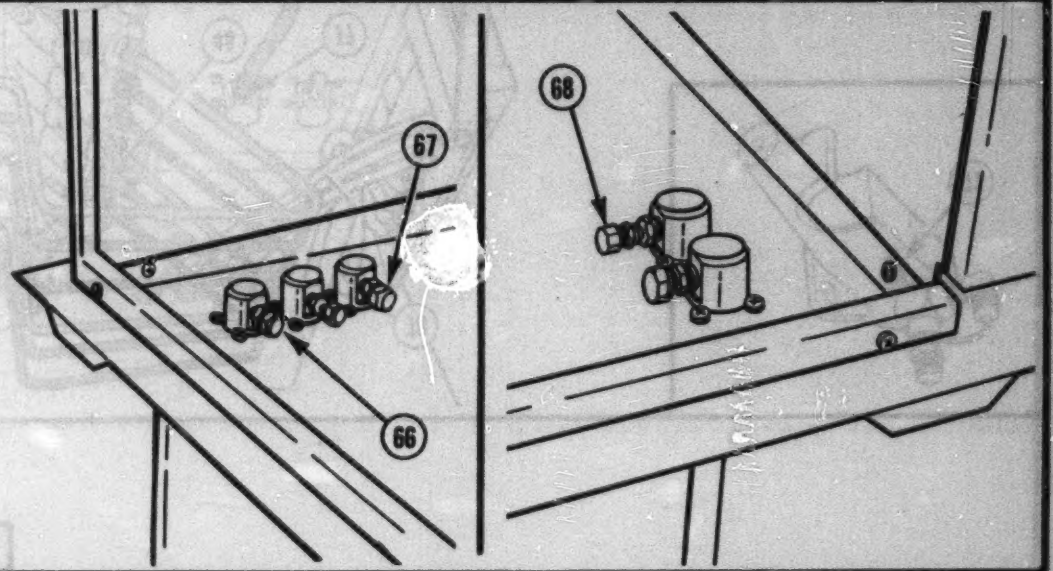
33 GOVERNOR CONTROL ROD (62). Install in rod holder (57).

34 HAND KNOB ASSEMBLY (59). Tighten.

35 FUEL SHUTOFF LEVER (7551366) (63), CAPSCREW (MS90726-10) (64), AND HEX NUT (MS35691-5) (65). Install.

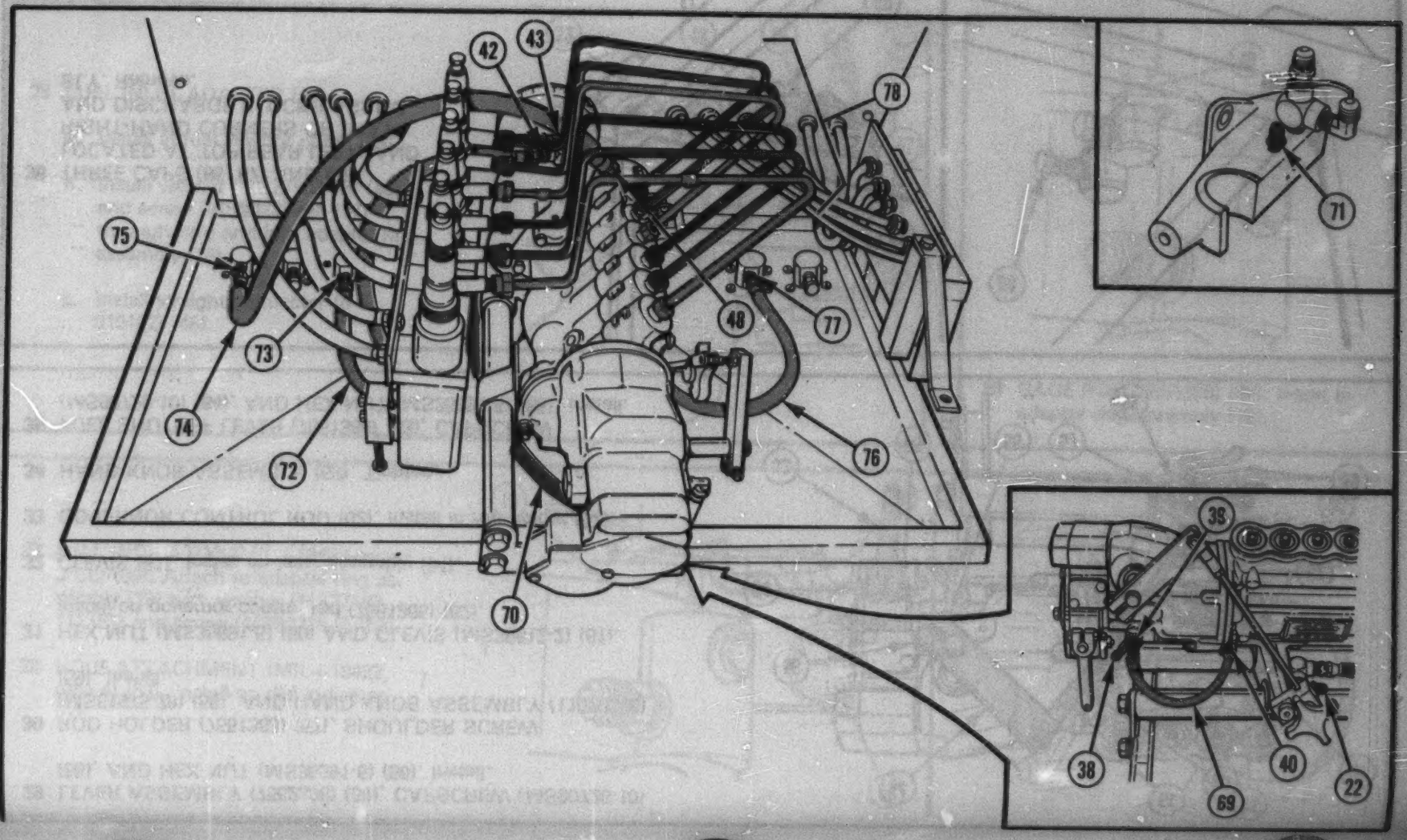


36 THREE CAPS (66, 67, AND 68) LOCATED AT TOP REAR LEFT- AND RIGHT-HAND CORNERS OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.



2-20. CATERPILLAR FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash number.

If Caterpillar fuel injector pump does not require an external oil line for governor interlock, omit steps 37 and 38. If an external oil line is required, omit step 39.

37 HOSE ASSEMBLY -13 (69). Install on tube adapter (40) and elbow (39).

38 HOSE ASSEMBLY -1 (70). Install on tube adapter (38) and elbow (43).

NOTE

Use step 39 only if Caterpillar fuel injector pump does not require an external oil line for governor interlock.

39 HOSE ASSEMBLY -1 (70). Install on elbow (43) and either tube adapter (71) in support no. 2 or tube adapter (40).

40 HOSE ASSEMBLY -1 (72). Install on lube oil pressure connector (73) and tube adapter (42).

41 HOSE ASSEMBLY -2 (74). Install on fuel pressure connector (75) and straight connector (48).

42 HOSE ASSEMBLY -15 (76). Install on support no. 1 (22) and lube oil return connector (77).

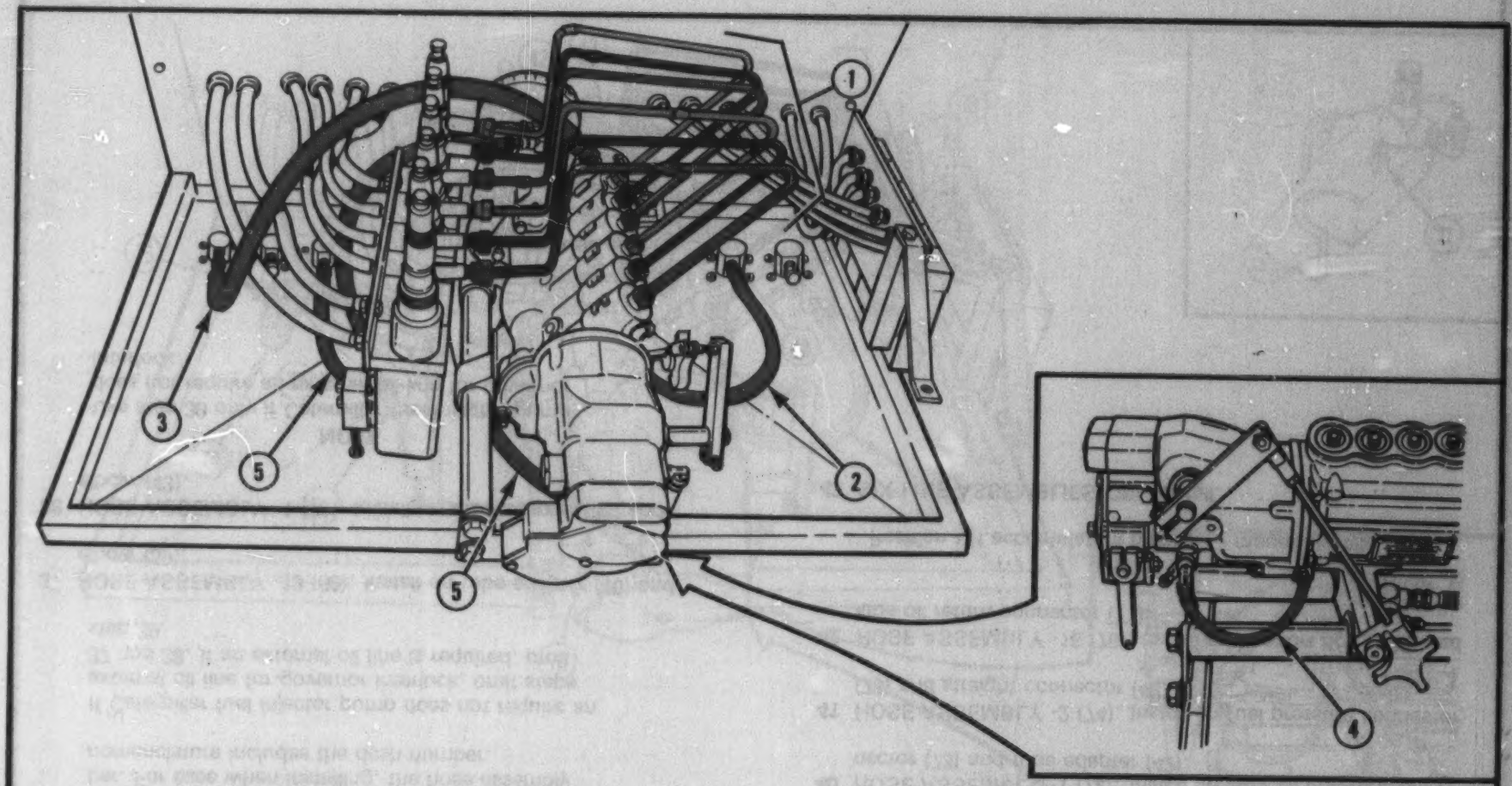
NOTE

Position LH accumulators parallel to mounting rails.

43 SIX LINE ASSEMBLIES (78). Install.

2-20. CATERPILLAR FUEL INJECTOR PUMP (cont)

REMOVAL

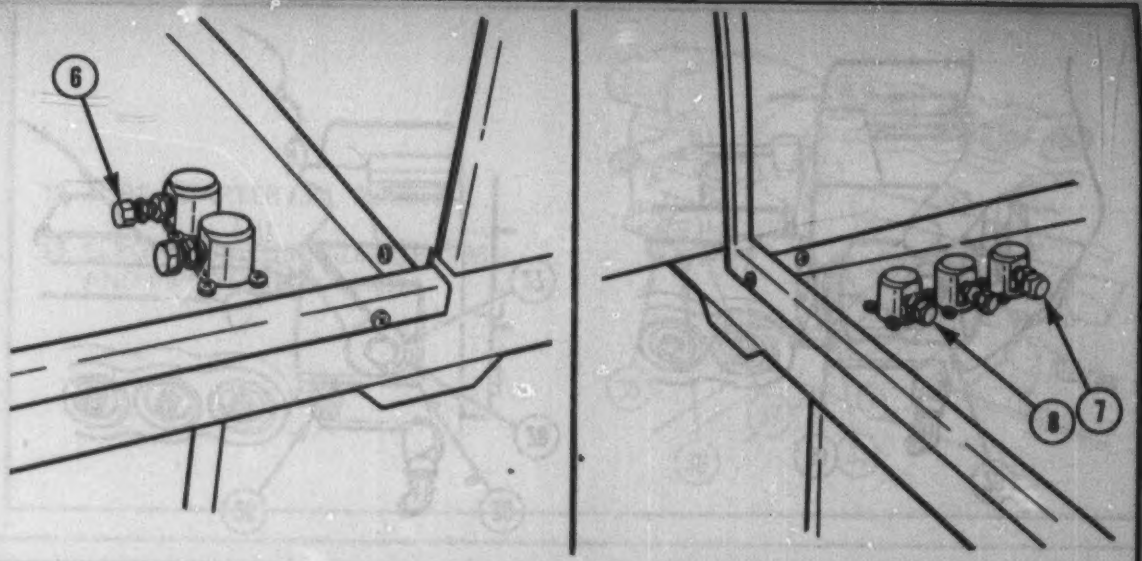


1 SIX LINE ASSEMBLIES (1). Remove.

2 THREE HOSE ASSEMBLIES (2, 3, AND 4). Remove.

3 TWO HOSE ASSEMBLIES (5). Remove.

4 THREE CAPS (6, 7, AND 8). Install.

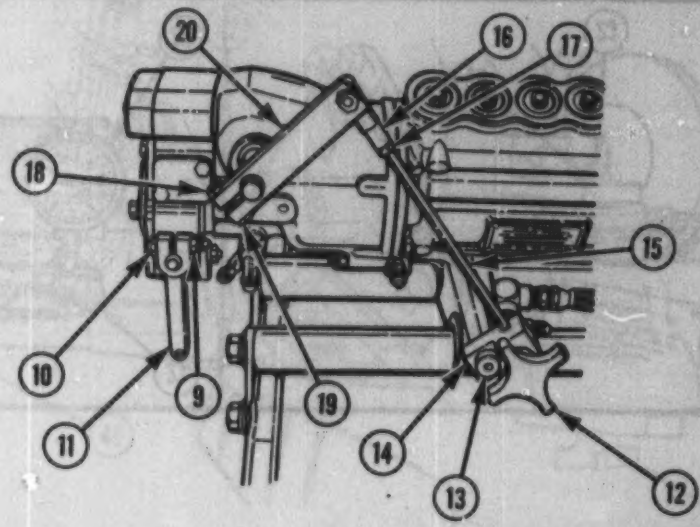


5 HEX NUT (9), CAPSCREW (10), AND FUEL SHUTOFF LEVER (11). Remove.

6 HAND KNOB ASSEMBLY (12), SHOULDER SCREW (13), AND ROD HOLDER (14). Remove.

7 GOVERNOR CONTROL ROD (15), CLEVIS (16), AND HEX NUT (17). Remove.

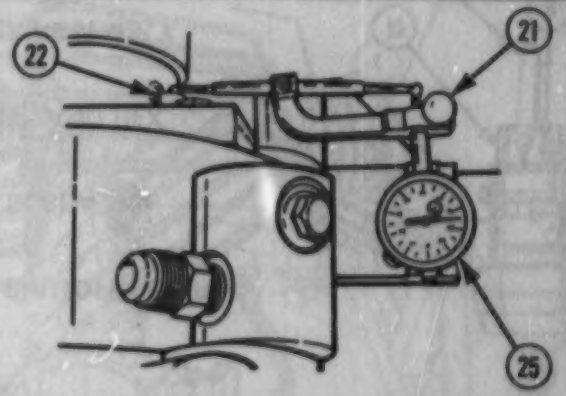
8 HEX NUT (18), CAPSCREW (19), AND LEVER ASSEMBLY (20). Remove.

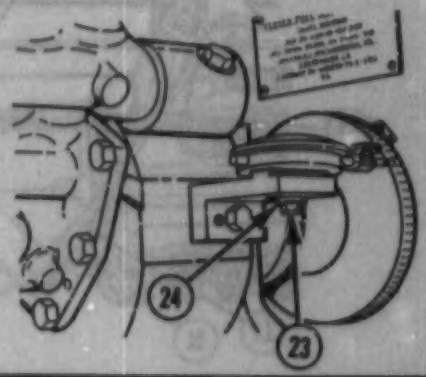


2-20. CATERPILLAR FUEL INJECTOR PUMP (cont)

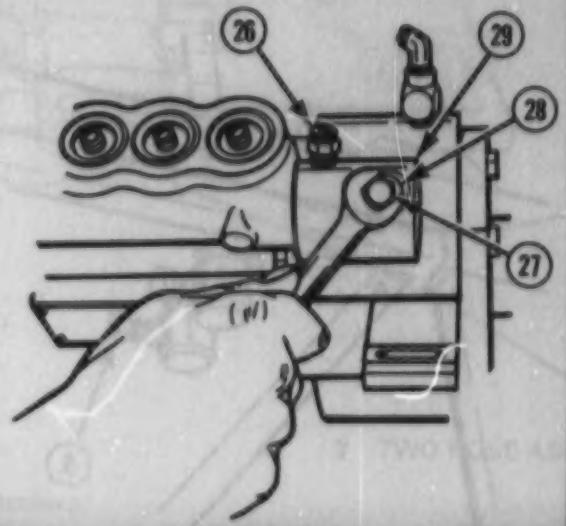
REMOVAL (cont)

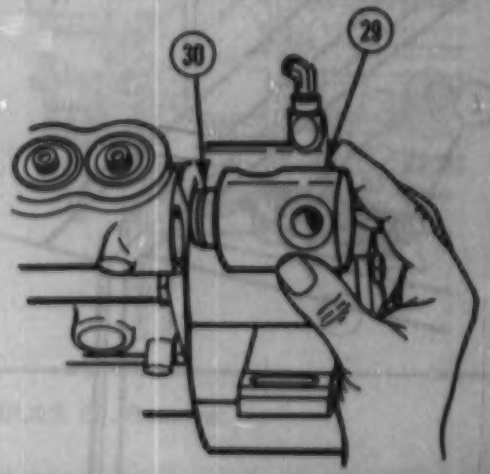
9 HOLE ATTACHMENT (21), GAGE ROD (22), SCREW (23), WASHER (24), AND DIAL INDICATOR (25). Remove.

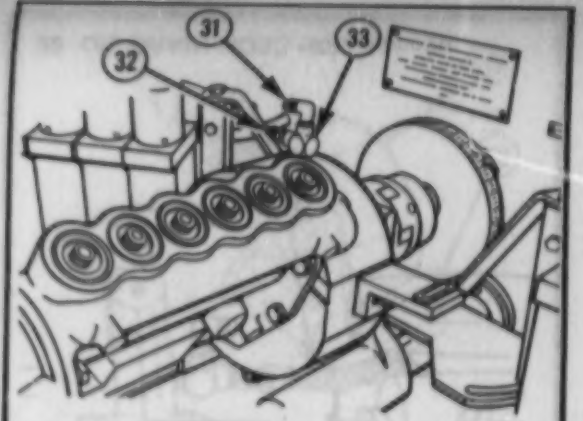




10 STRAIGHT CONNECTOR (26), SCREW (27), WASHER (28), FUEL INLET ADAPTER (29), AND PREFORMED PACKING (30). Remove.



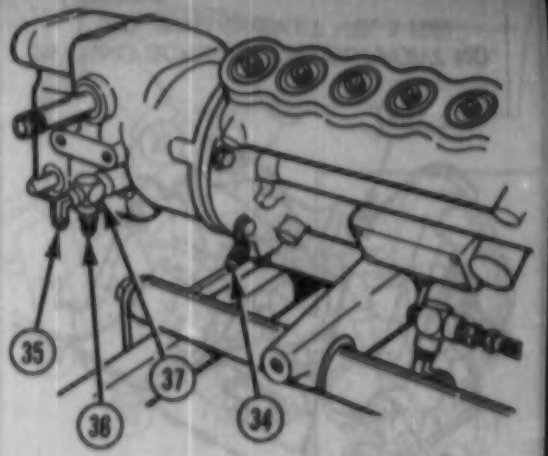




11 ELBOW (31), TUBE ADAPTER (32), AND PIPE TEE (33). Remove.

12 TUBE ADAPTER (34). Remove.

13 ELBOW (35), TUBE ADAPTER (36), AND PIPE TEE (37). Remove.



14 HAND KNOB ASSEMBLY (38). Loosen.

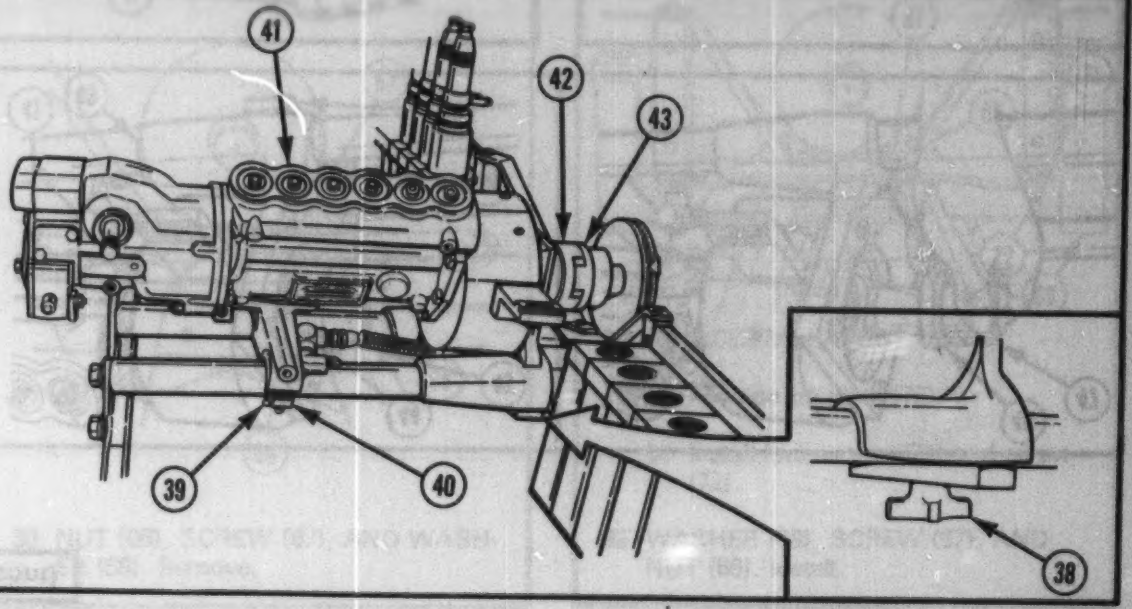
15 REAR HAND KNOB ASSEMBLY (39) AND CLAMP BAR (40). Remove.

16 FUEL INJECTOR PUMP (41).

a. Pull back.

b. Disengage coupling (42) with drive coupling (43).

17 HAND KNOB ASSEMBLY (38). Tighten.



2-20. CATERPILLAR FUEL INJECTOR PUMP (cont)

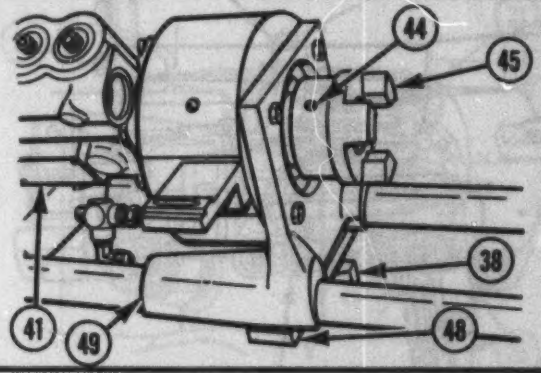
REMOVAL (cont)

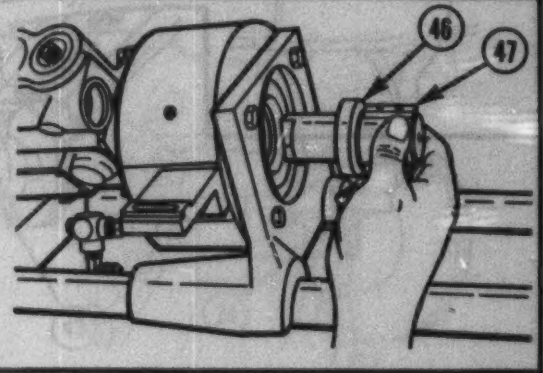
18 SETSCREW (44). Loosen.

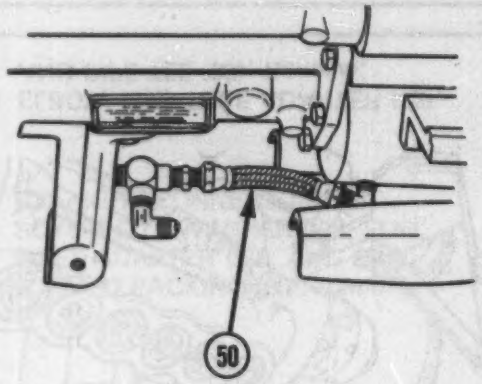
19 COUPLING (45), SHAFT (46), AND KEY (47). Remove.

20 HAND KNOB ASSEMBLY (38) AND CLAMP BAR (48). Remove.

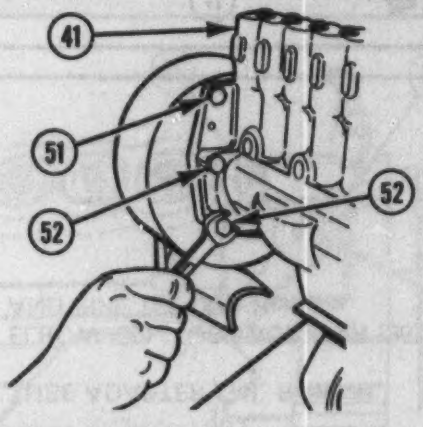
21 FUEL INJECTOR PUMP (41) WITH ADAPTER BRACKET (49). Remove from tester.





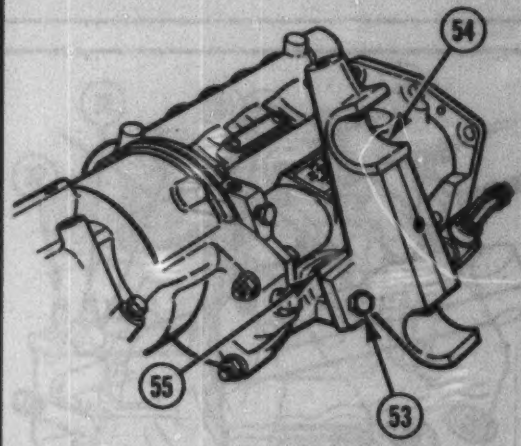


22 OIL DRAIN HOSE (50). Remove.

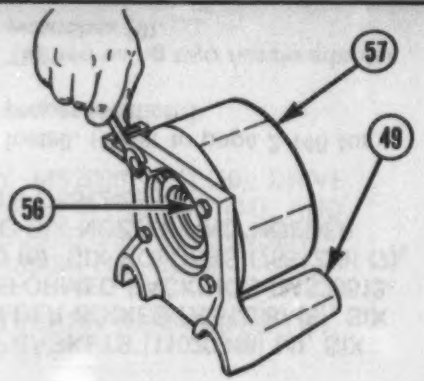


23 TWO SCREWS (51) AND FOUR SCREWS (52). Remove.

24 FUEL INJECTOR PUMP (41). Remove.



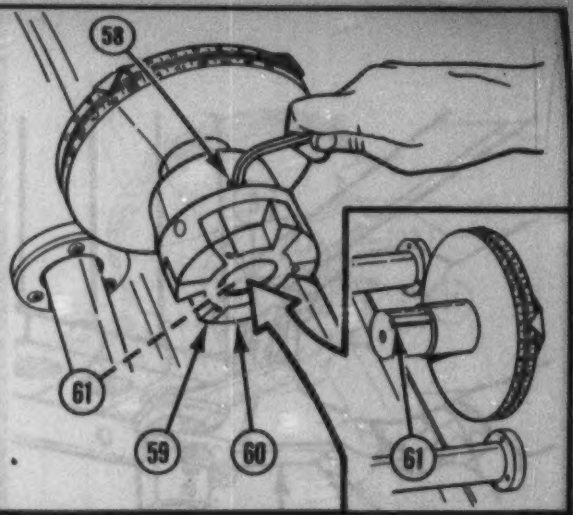
25 TWO SCREWS (53), SUPPORT NO. 1 (54), AND GASKET NO. 1 (55). Remove.

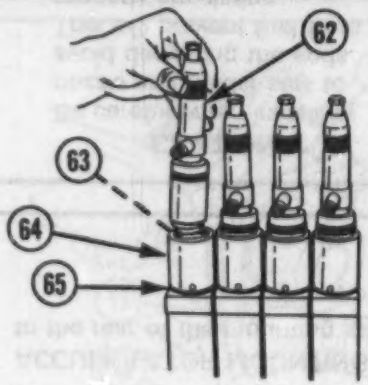


26 FOUR SCREWS (56), ADAPTER RING ASSEMBLY (57), AND ADAPTER BRACKET (49). Remove.

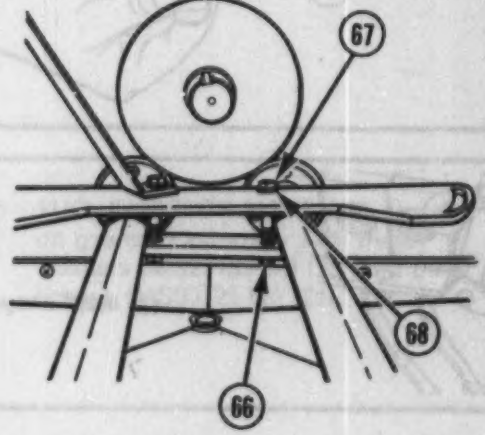
27 SETSCREW (58). Loosen.

28 FLEXIBLE COUPLING INSERT (59), DRIVE COUPLING (60), AND KEY (61). Remove.

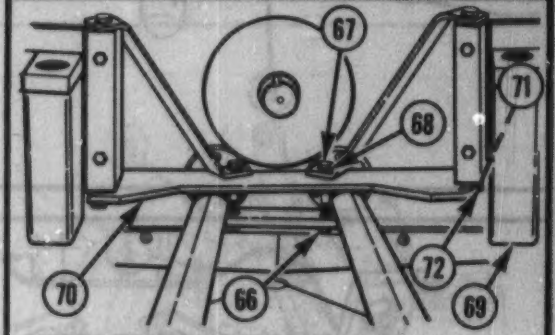




29 SIX VALVE ASSEMBLIES (62), SIX PREFORMED PACKINGS (63), SIX ADAPTERS (64), AND SIX GASKETS (65). Remove.



30 NUT (66), SCREW (67), AND WASHER (68). Remove.



31 RH ACCUMULATORS (69).

a. Position on plate (70).

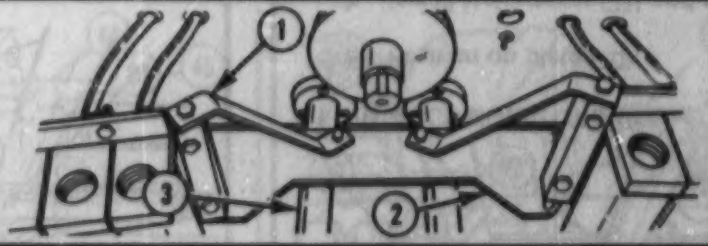
b. Install lockwasher (71) and screw (72).

32 WASHER (68), SCREW (67), AND NUT (66). Install.

2-21. ROOSA MASTER FUEL INJECTOR PUMP

INSTALLATION

1 ACCUMULATOR MOUNTING ASSEMBLY (1). Move plate (2) to the rear of the mounting rails (3).



CAUTION

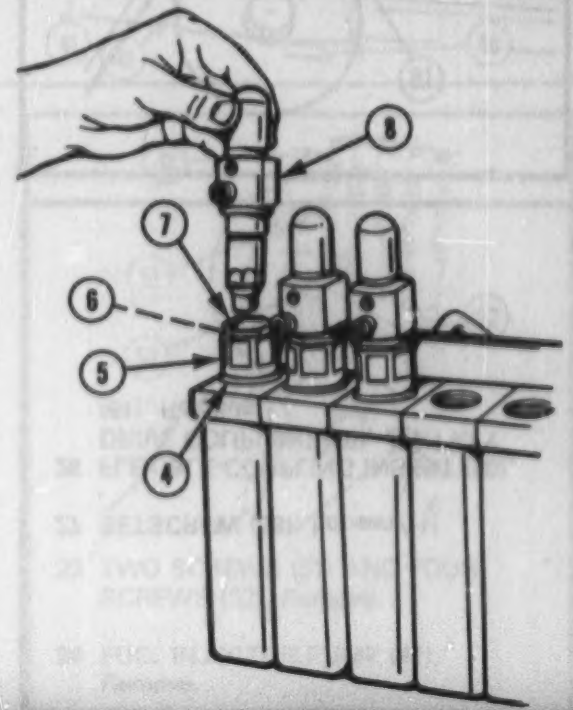
Be careful when installing nozzle and holder sets to avoid damaging the ends. This will prevent fuel from properly circulating.

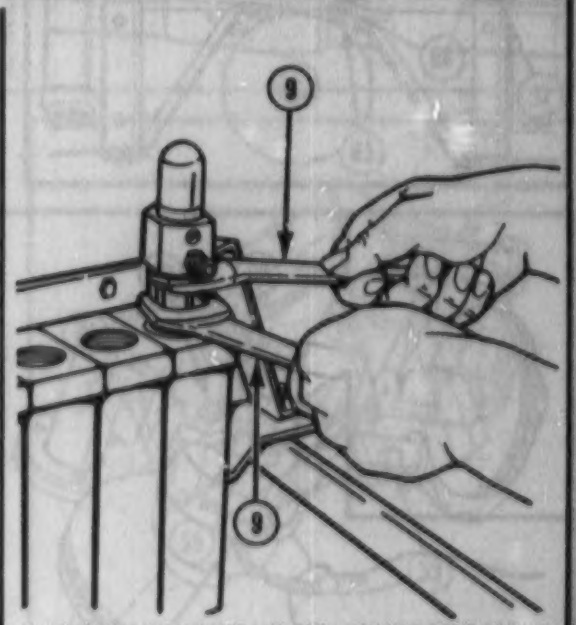
Do not overtighten six holder bodies and six holders as preformed packing will be distorted.

2 SIX GASKETS (11020348) (4), SIX HOLDER BODIES (7551238) (5), SIX PREFORMED PACKINGS (MS29513-021) (6), SIX HOLDERS (7551239) (7), AND SIX NOZZLE AND HOLDER SETS (7551240) (8).

a. Install. (Refer to page 2-146 for proper location.)

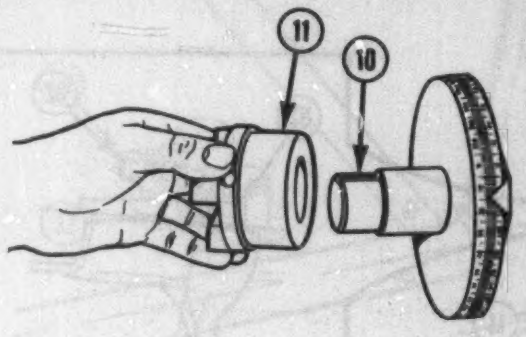
b. Tighten using two nozzle adapter wrenches (9).

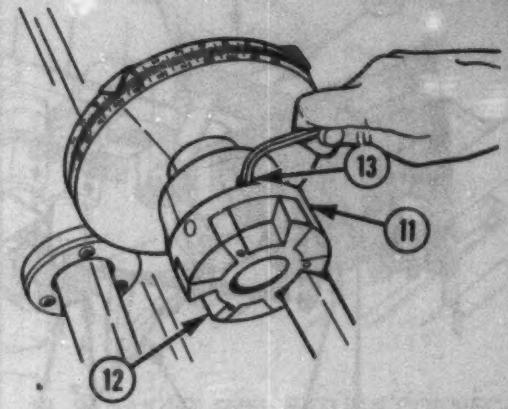


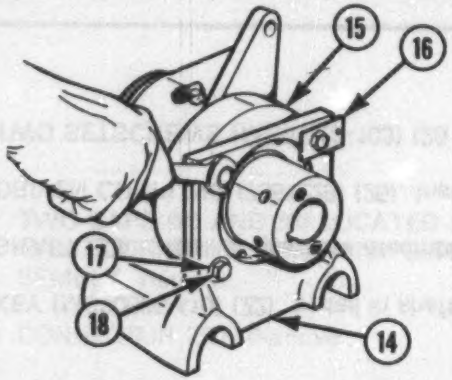


3 KEY (MS20067-271) (10), DRIVE COUPLING (7551246) (11), AND FLEXIBLE COUPLING INSERT (L110S0X) (12). Install.

4 SETSCREW (MS51963-85) (13). Tighten.

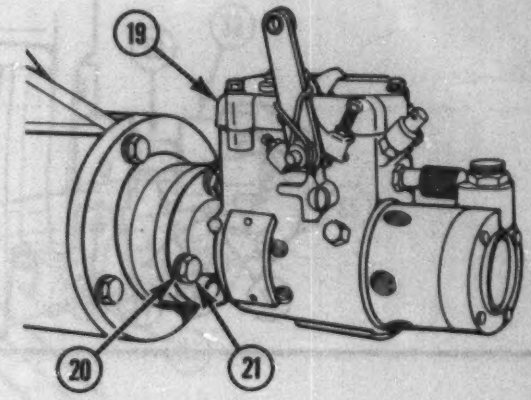






5 ADAPTER BRACKET (11020392) (14). Install on gearcase assembly (7551318) (15) with retainer (7551250) (16), four washers (MS27183-14) (17), and four screws (MS90725-60)(18).

6 FUEL INJECTOR PUMP (19). Install on gearcase assembly with three washers (MS27183-14) (20) and three screws (MS90725-58) (21).



2-21. ROOSA MASTER FUEL INJECTOR PUMP (cont)

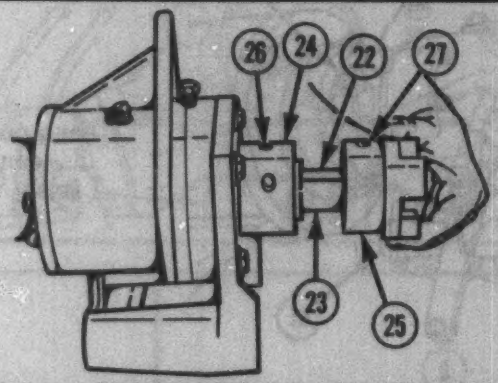
INSTALLATION (cont)

7 KEY (MS20066-410) (22). Install in shaft (7551245) (23).

8 SHAFT (23). Install in gearcase assembly coupling (24).

9 DRIVEN COUPLING (7551229) (25). Install on shaft (23).

10 TWO SETSCREWS (MS51963-103) (26 AND 27). Tighten.



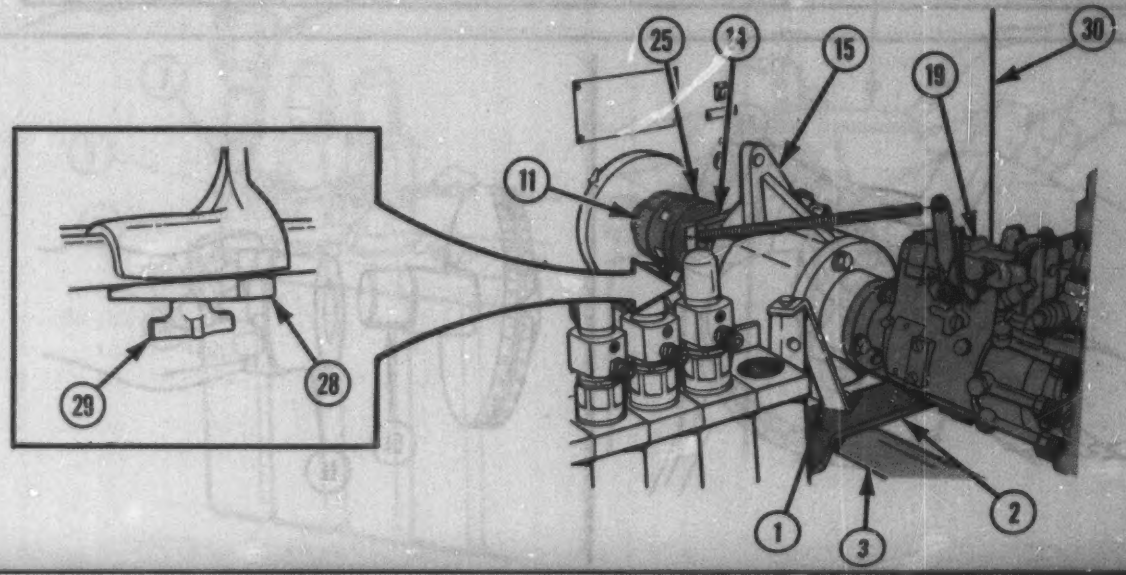
11 FUEL INJECTOR PUMP (19) WITH ATTACHED GEARCASE ASSEMBLY (15) AND ADAPTER BRACKET (14).

a. Position on mounting rails (3).

b. Engage driven coupling (25) with drive coupling (11) leaving 1/16-in. (0.159-cm) gap.

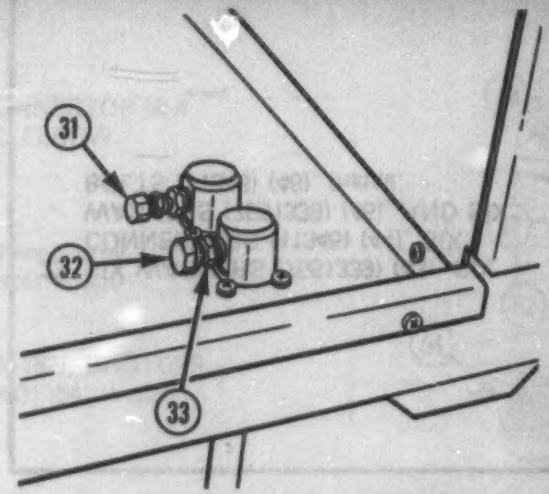
12 CLAMP BAR (28) AND HAND KNOB ASSEMBLY (29). Install in adapter bracket (14) and tighten hand knob assembly (29).

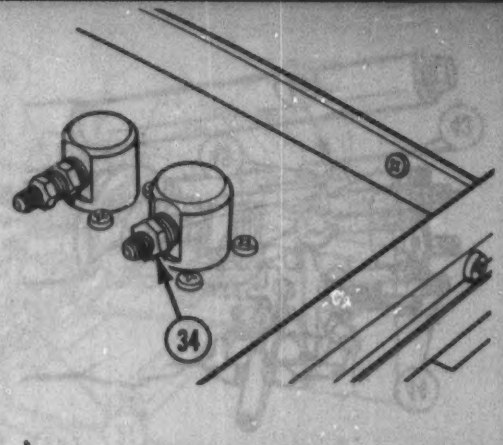
13 ACCUMULATOR MOUNTING ASSEMBLY (1). Position plate (2) 15 in. (38.10 cm) from instrument panel (30).



14 TWO CAPS (31 AND 32) LOCATED AT TOP REAR RIGHT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.

15 CONNECTOR (33). Remove.

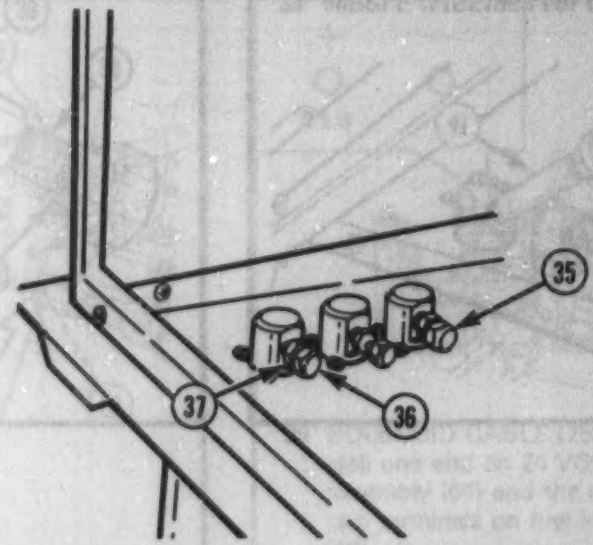




16 STRAIGHT FUEL RETURN CONNECTOR (4-6 010102) (34). Install.

17 TWO CAPS (35 AND 36) LOCATED AT TOP REAR LEFT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.

18 CONNECTOR (37). Remove.

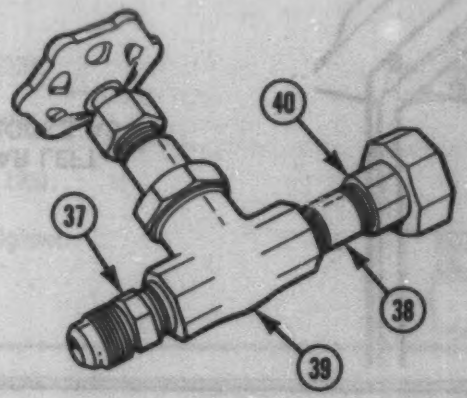


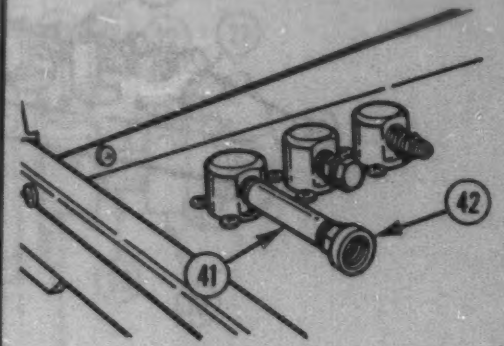
2-21. ROOSA MASTER FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

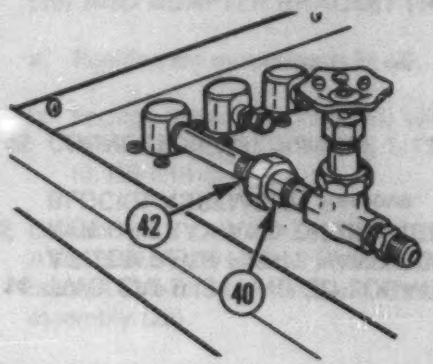
19 FUEL PRESSURE CONNECTOR (37) AND NIPPLE (MS51953-52) (38). Install on valve (MIL-V-1202, type 1, style A, size 0.375 in.) (39).

20 FEMALE HALF OF UNION (WW-U-531, CLASS 1, TYPE B) (40). Install on nipple (38).



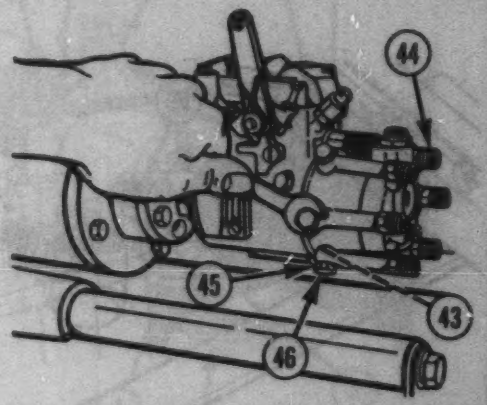


21 NIPPLE (MS51953-59) (41) AND MALE HALF OF UNION (42). Install.



22 FEMALE HALF OF UNION (40). Screw onto male half of union (42).

23 SIX WASHERS (7551339) (43), SIX CONNECTORS (11345) (44), SIX WASHERS (7551339) (45), AND SIX BOLTS (11346) (46). Install.

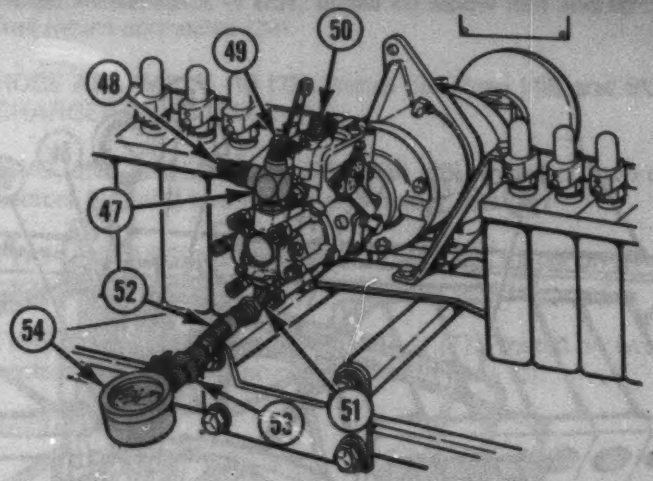


24 PIPE TEE (4-4-4 140424) (47), STRAIGHT CONNECTOR (8-4 010102) (48), ELBOW (4-4 010202) (49), AND ELBOW (MS39162-3) (50). Install.

NOTE

For Roosa Master fuel injector pumps where elbow (51) will not directly screw in, install reducer adapter (4-2 130139).

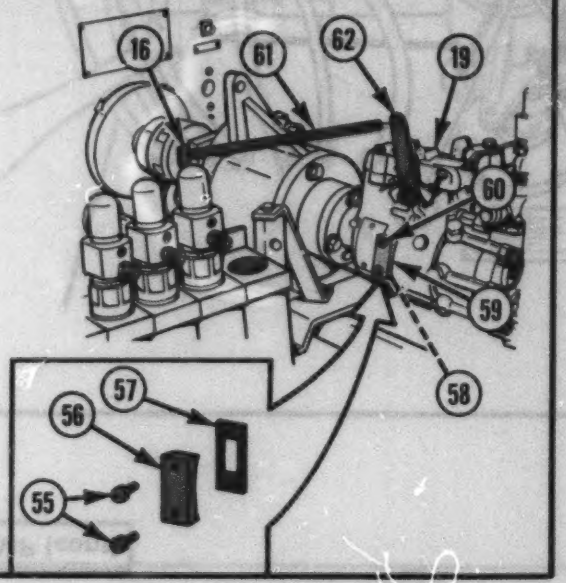
25 ELBOW (MS39162-5) (51), HOSE (7550081-9) (52), SHUTOFF COCK (MS35934-2) (53), AND GAGE (7551253) (54). Install.

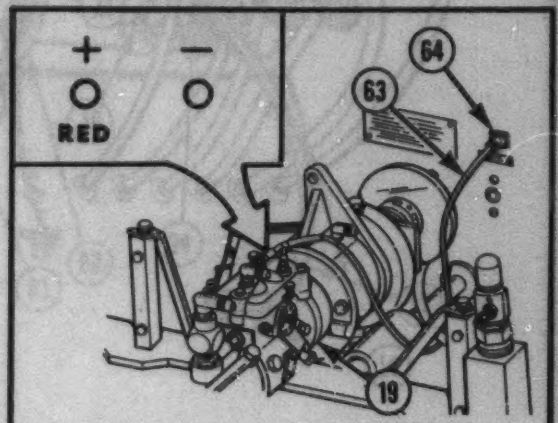


26 TWO SCREWS (55), COVER (56), AND GASKET (57). Remove from fuel injector pump (19).

27 GASKET (58), GAGE (13366) (59), AND TWO SCREWS (60). Install.

28 THROTTLE SPRING (11020442) (61). Install one end on retainer (16) and other end on throttle pump lever (62).

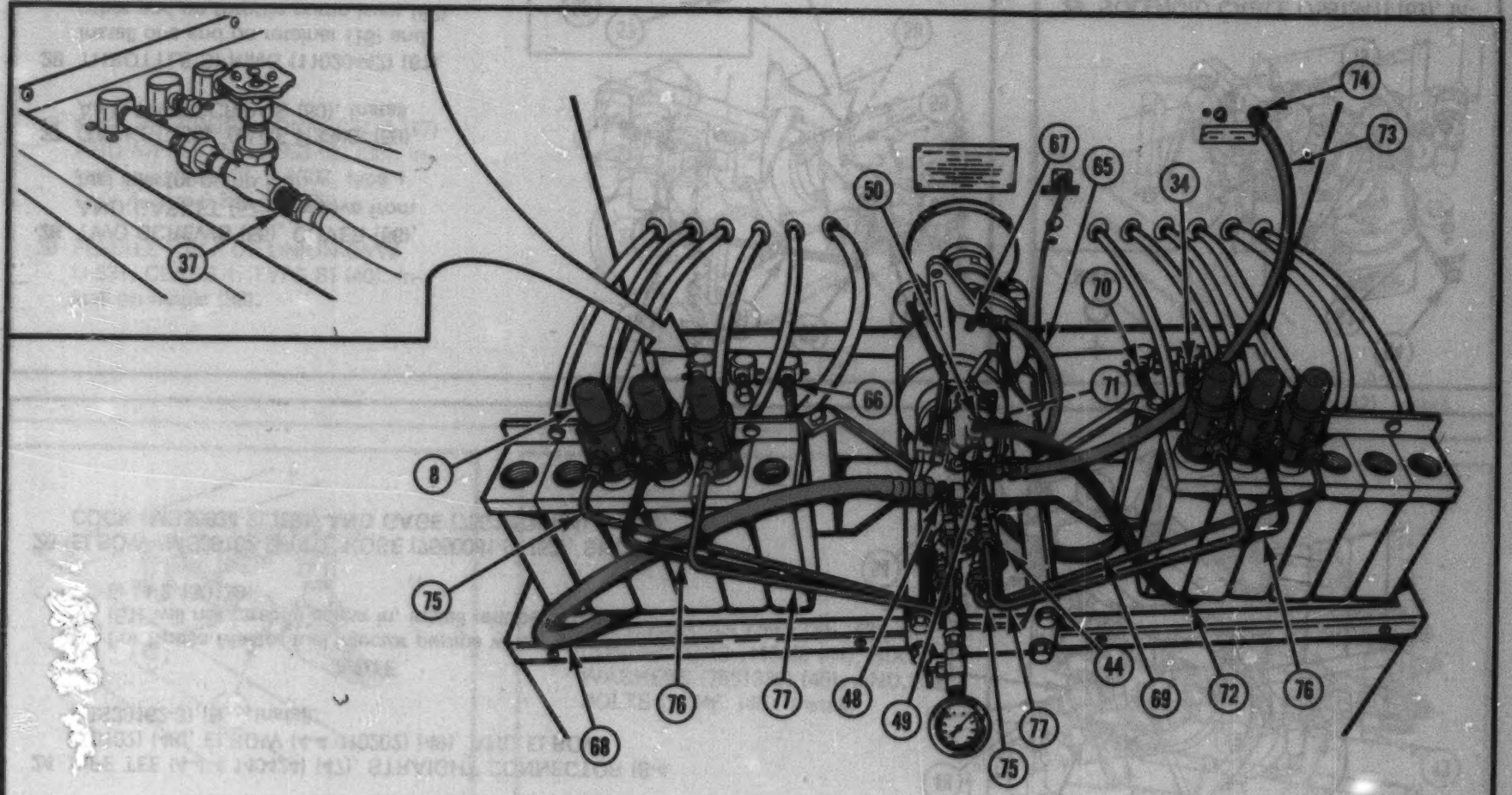




29 SOLENOID CABLE (7551341) (63). Install one end on 24 VOLTS DC outlet assembly (64) and the other end with two terminals on fuel injector pump (19).

2-21. ROOSA MASTER FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash number.

30 HOSE ASSEMBLY -1 (65). Install on lube oil pressure connector (66) and elbow (67).

31 HOSE ASSEMBLY -2 (68). Install on fuel pressure connector (37) and straight connector (48).

32 HOSE ASSEMBLY -15 (69). Install on lube oil return connector (70) and connector (71) located underneath on gearcase assembly.

33 HOSE ASSEMBLY -1 (72). Install on elbow (50) and straight fuel return connector (34).

34 HOSE ASSEMBLY -10 (73). Install on elbow (49) and SUPERCHARGER INLET (74).

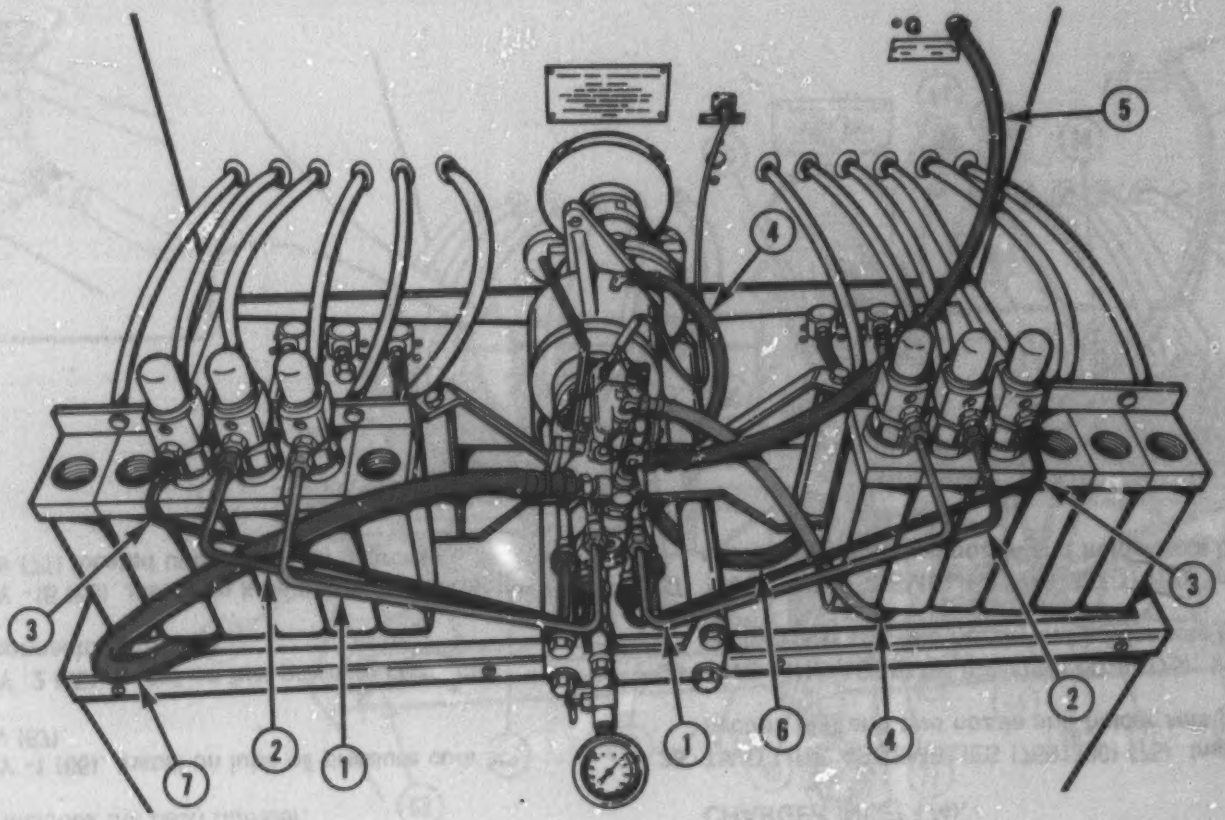
35 TWO LINE ASSEMBLIES (7551336) (75). Install on two connectors (44) and two nozzle and holder sets (8).

36 TWO LINE ASSEMBLIES (7551337-2) (76). Install on two connectors (44) and two nozzle and holder sets (8).

37 TWO LINE ASSEMBLIES (7551337-1) (77). Install on two connectors (44) and two nozzle and holder sets (8).

2-21. ROOSA MASTER FUEL INJECTOR PUMP (cont)

REMOVAL



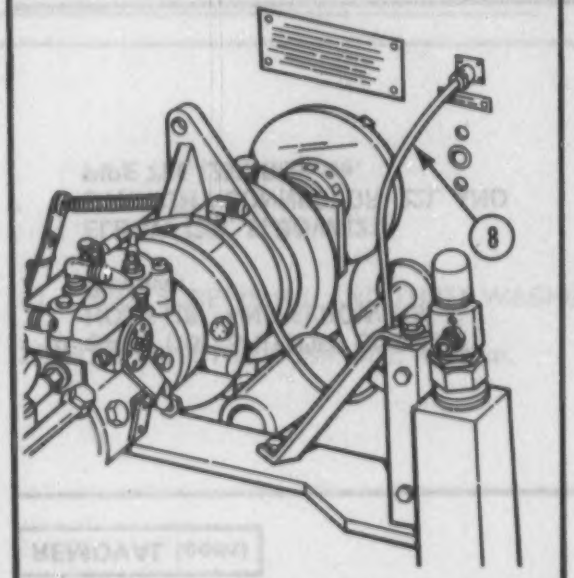
1 TWO LINE ASSEMBLIES (1). Remove.

2 TWO LINE ASSEMBLIES (2). Remove.

3 TWO LINE ASSEMBLIES (3). Remove.

4 TWO HOSE ASSEMBLIES (4). Remove.

5 THREE HOSE ASSEMBLIES (5, 6, AND 7). Remove.

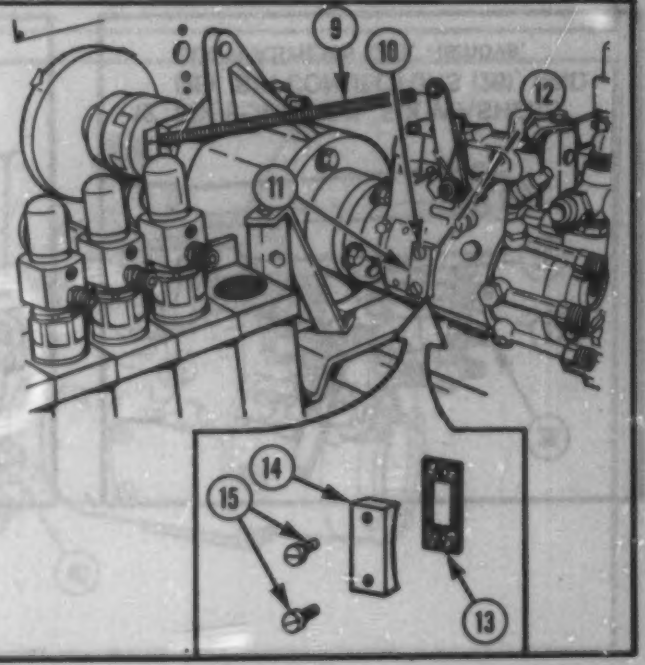


6 SOLENOID CABLE (8). Remove.

7 THROTTLE SPRING (9). Remove.

8 TWO SCREWS (10), GAGE (11), AND GASKET (12). Remove.

9 GASKET (13), COVER (14), AND TWO SCREWS (15). Install.

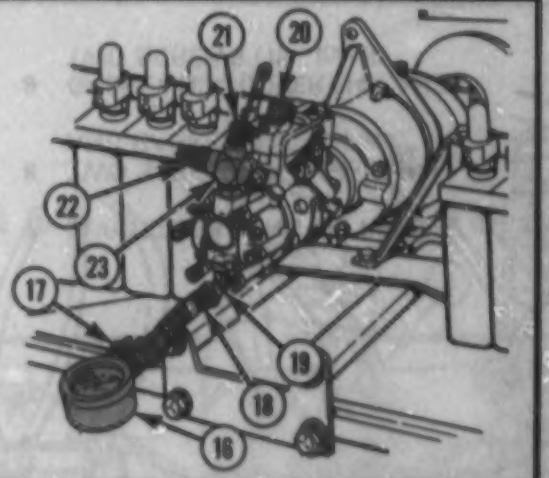


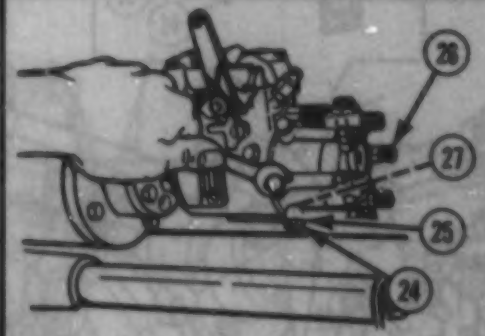
2-21. ROOSA MASTER FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

10 GAGE (16), SHUTOFF COCK (17), HOSE (18), AND ELBOW (19). Remove.

11 ELBOW (20), ELBOW (21), STRAIGHT CONNECTOR (22), AND PIPE TEE (23). Remove.



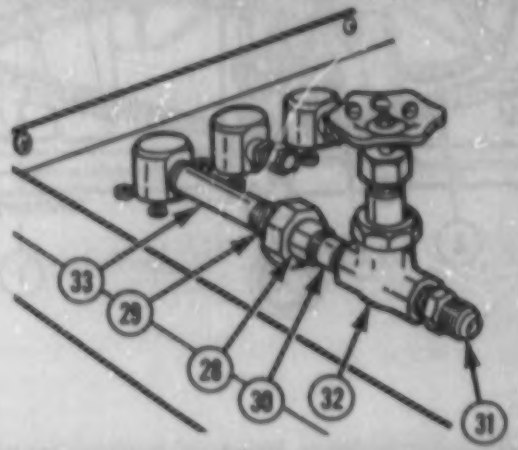


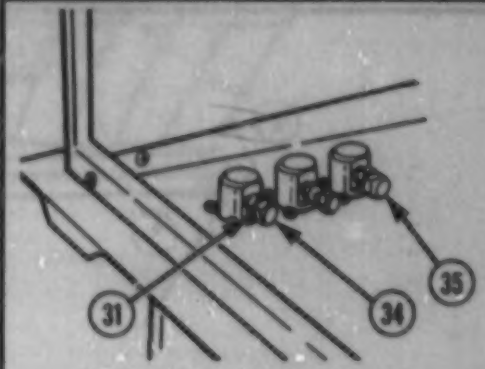
12 SIX BOLTS (24), SIX WASHERS (25), SIX CONNECTORS (26), AND SIX WASHERS (27). Remove.

13 FEMALE HALF OF UNION (28). Unscrew from male half of union (29).

14 FEMALE HALF OF UNION (28), NIPPLE (30), CONNECTOR (31), AND VALVE (32). Remove.

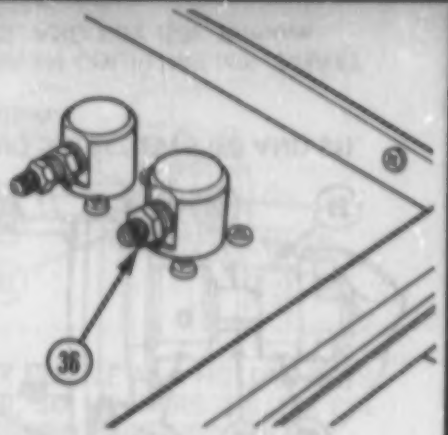
15 MALE HALF OF UNION (29) AND NIPPLE (33). Remove.





16 CONNECTOR (31). Install.

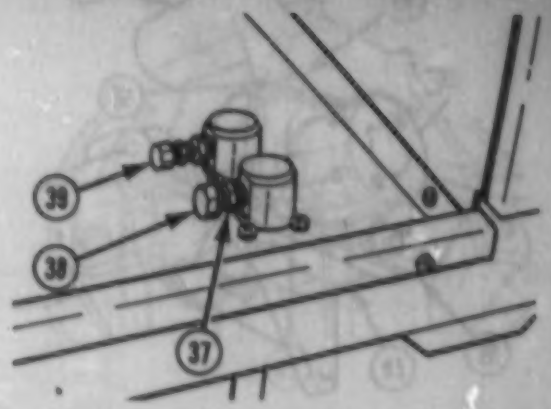
17 TWO CAPS (34 AND 35). Install.



18 STRAIGHT CONNECTOR (36). Remove.

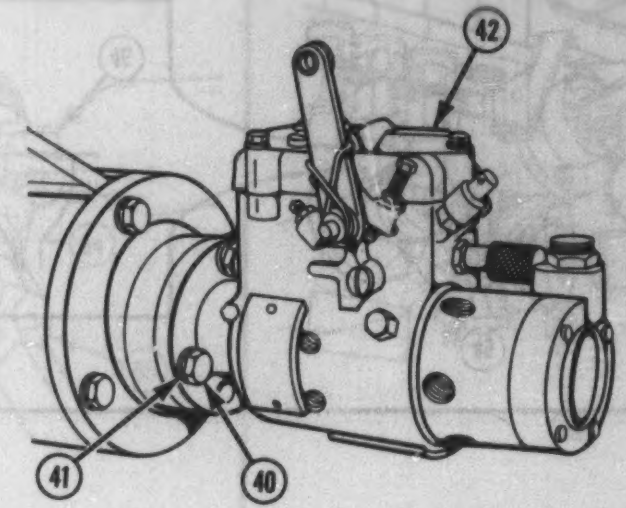
19 CONNECTOR (37). Install.

20 TWO CAPS (38 AND 39). Install.



21 THREE SCREWS (40) AND THREE WASHERS (41). Remove.

22 FUEL INJECTOR PUMP (42). Remove.



2-21. ROOSA MASTER FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

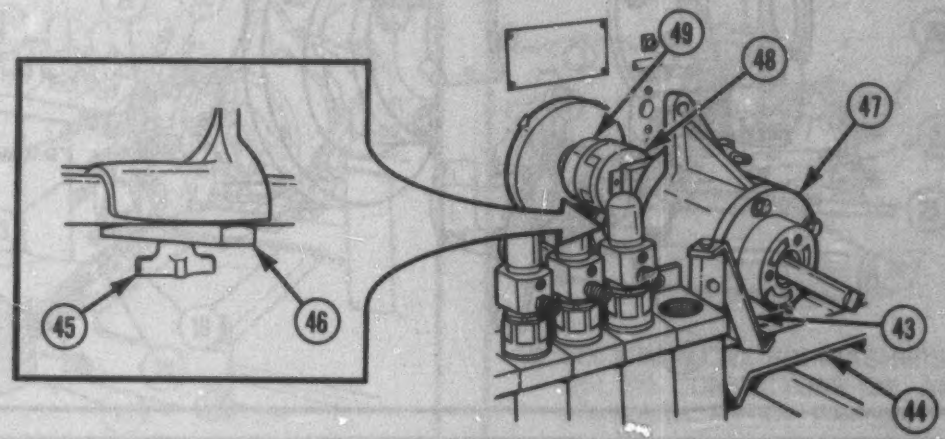
23 ACCUMULATOR MOUNTING ASSEMBLY (43). Slide plate (44) to rear of mounting rails.

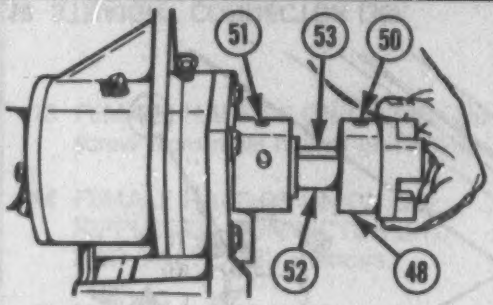
24 HAND KNOB ASSEMBLY (45) AND CLAMP BAR (46). Remove.

25 GEARCASE ASSEMBLY (47).

a. Pull back to disengage driven coupling (48) from drive coupling (49).

b. Remove from mounting rails.



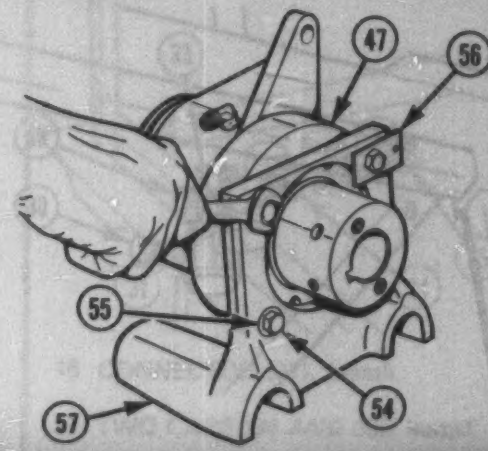


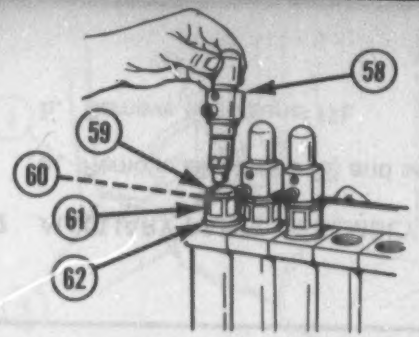
26 TWO SETSCREWS (50 AND 51). Loosen.

27 DRIVEN COUPLING (48), SHAFT (52), AND KEY (53). Remove.

28 FOUR SCREWS (54), FOUR WASHERS (55), AND RETAINER (56). Remove.

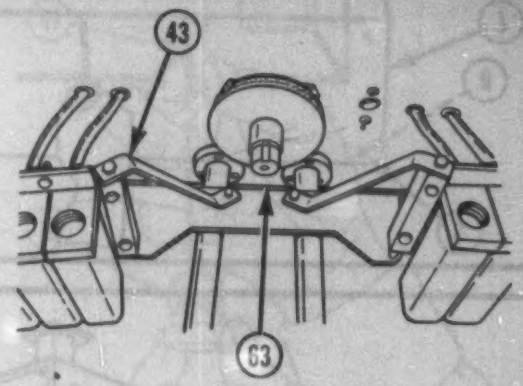
29 ADAPTER BRACKET (57) AND GEARCASE ASSEMBLY (47). Remove.





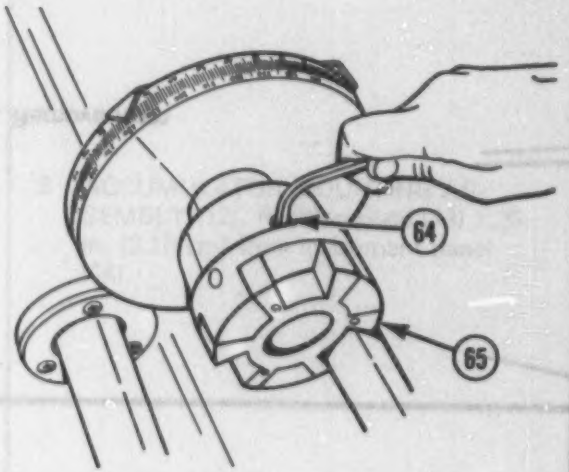
30 SIX NOZZLE AND HOLDER SETS (58), SIX HOLDERS (59), SIX PREFORMED PACKINGS (60), SIX HOLDER BODIES (61), AND SIX GASKETS (62). Remove.

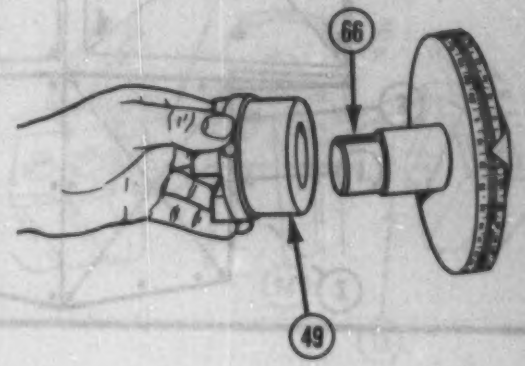
31 ACCUMULATOR MOUNTING ASSEMBLY (43). Push back near instrument panel (63).



32 SETSCREW (64). Loosen.

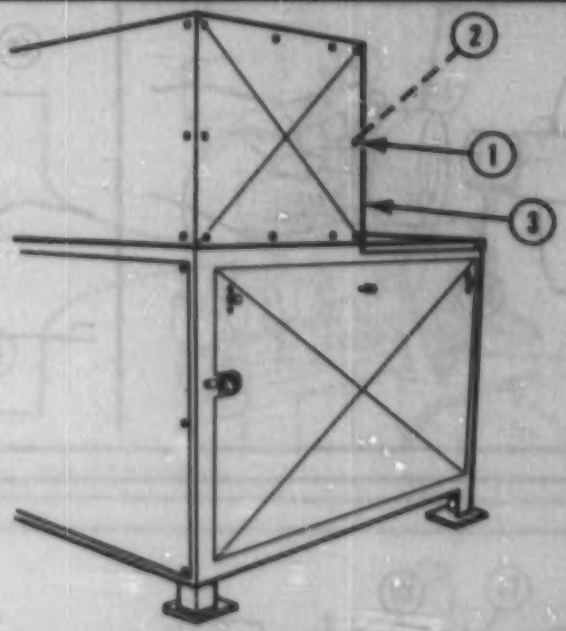
33 FLEXIBLE COUPLING INSERT (65), DRIVE COUPLING (49), AND KEY (66). Remove.





2-22. CUMMINS FUEL INJECTOR PUMP

INSTALLATION

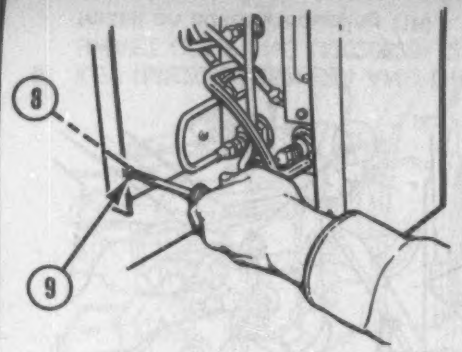


1 FIVE SCREWS (1) AND FIVE WASHERS (2). Remove from upper LH side panel (3) of tester.

2 AUXILIARY PANEL ASSEMBLY (11020531) (4).

a. Remove six screws (5) and six washers (6).

b. Remove back panel (7).

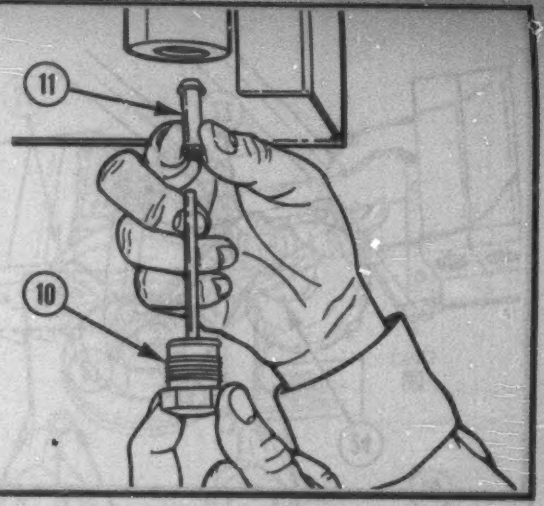


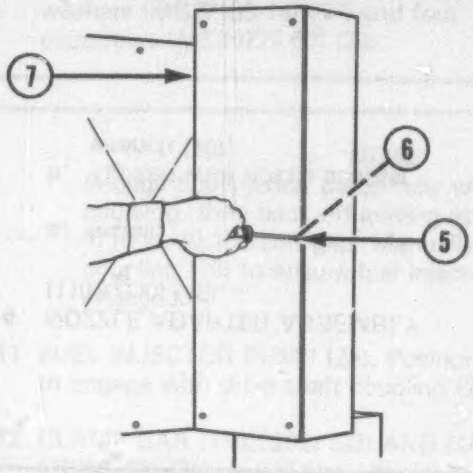
c. Install to tester with five lockwashers (MS35338-63) (8) and five screws (MS90725-6) (9).

d. Remove plug (10).

NOTE
Ensure cone end of float is installed first.

e. Install float (11) and plug (10).

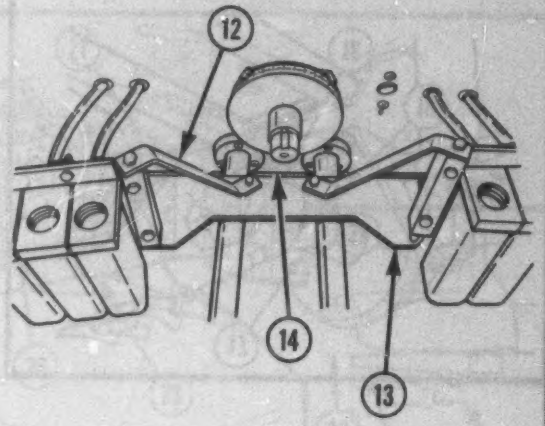




f. Position back panel (7).

g. Install six washers (6) and six screws (5).

3 ACCUMULATOR MOUNTING ASSEMBLY (12). Position plate (13) 1.25 in. (3.18 cm) from instrument panel (14).



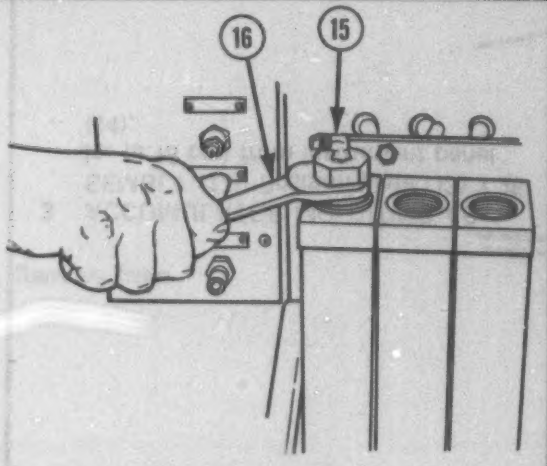
2-22. CUMMINS FUEL INJECTOR PUMP (cont)

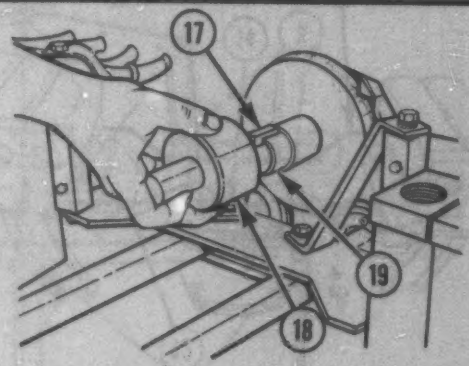
INSTALLATION (cont)

4 NOZZLE ADAPTER ASSEMBLY (11020530) (15).

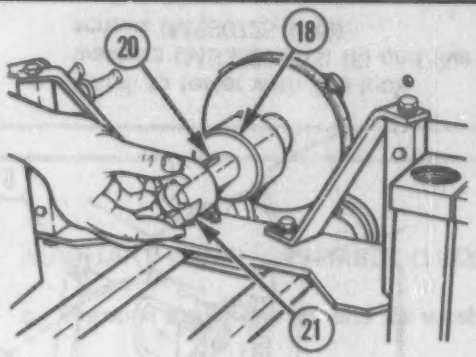
a. Install.

b. Tighten with nozzle adapter wrench (16).





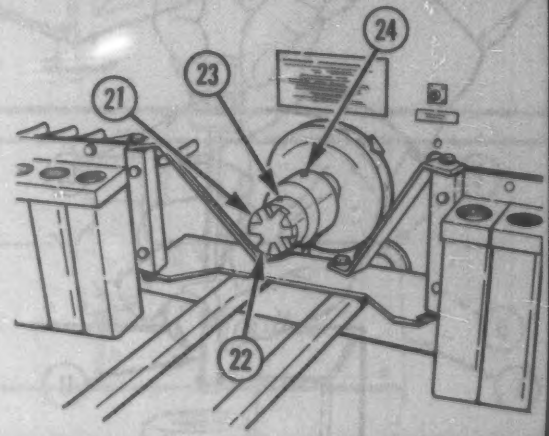
5 KEY (MS20067-271) (17) AND ADAPTER COUPLING (7551749) (18). Install on shouldered shaft (19).

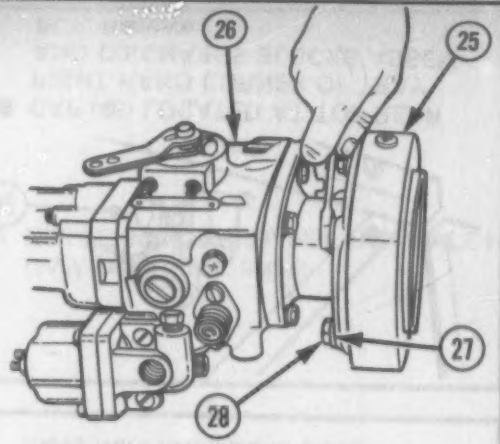


6 KEY (MS20066-252) (20) AND DRIVE SHAFT COUPLING (11020528) (21). Install on adapter coupling (18).

7 FLEXIBLE COUPLING INSERT (7551247-2) (22). Install on drive shaft coupling (21).

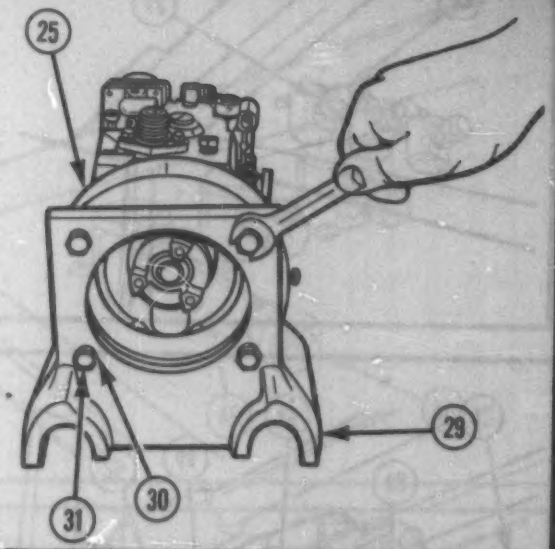
8 SETSCREW (MS51963-85) (23) AND SETSCREW (MS51963-100) (24). Tighten.





9 MOUNTING RING ADAPTER ASSEMBLY (11020532) (25). Install on fuel injector pump (26) using four flat washers (MS27183-14) (27) and four capscrews (MS90725-60) (28).

10 ADAPTER BRACKET (11020392) (29). Install on mounting ring adapter assembly (25) using four flat washers (MS27183-14) (30) and four capscrews (MS90725-64) (31).



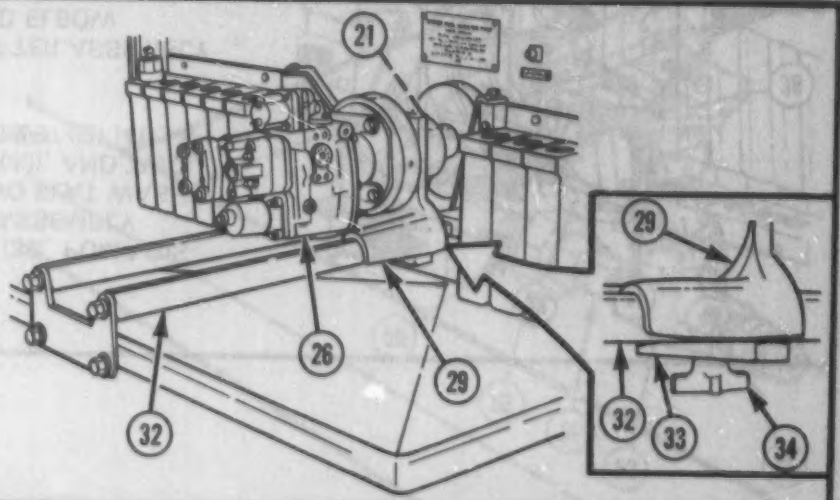
NOTE

Engage fuel injector pump fully with drive shaft coupling, then back off leaving approximately a 1/16-in. (0.159-cm) gap. Manually rotate adapter coupling (18) to ensure fuel injector pump is engaged.

11 FUEL INJECTOR PUMP (26). Position on mounting rails (32) to engage with drive shaft coupling (21).

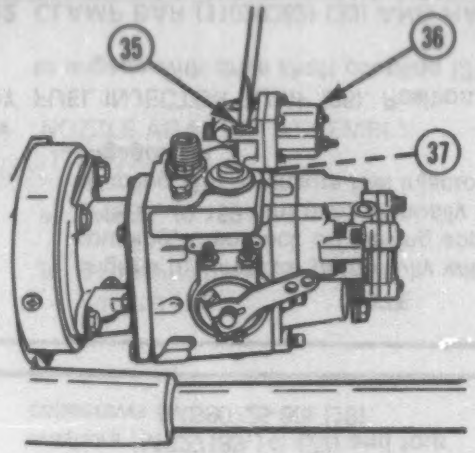
12 CLAMP BAR (11020262) (33) AND HAND KNOB ASSEMBLY (11020266) (34). Install into adapter bracket (29) from under mounting rails (32).

13 HAND KNOB ASSEMBLY (34). Tighten.



2-22. CUMMINS FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)

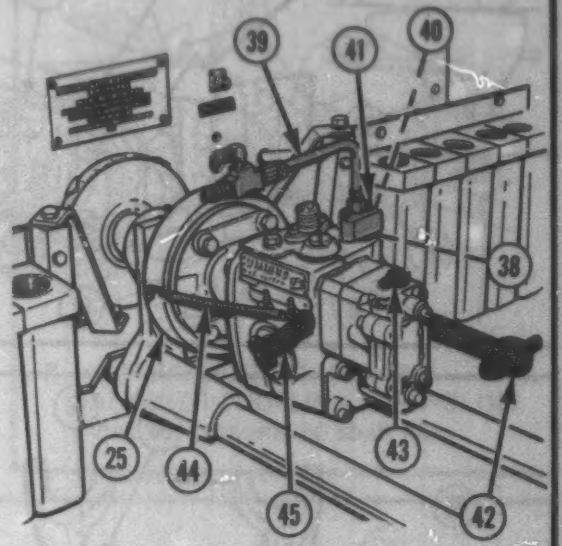


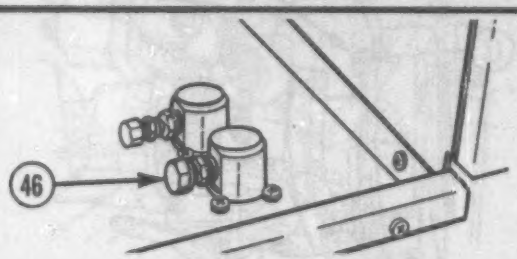
14 TWO SCREWS (35), ELECTRIC SOLENOID (36), AND GASKET (37). Remove from fuel injector pump.

15 GASKET (7540630) (38), PUMP DISCHARGE FITTING ASSEMBLY (11020540) (39), TWO FLAT WASHERS (MS27183-10) (40), AND TWO CAPSCREWS (MS16997-63) (41). Install.

16 PUMP INLET ADAPTER ASSEMBLY (11020534) (42) AND ELBOW (MS39162-3) (43). Install.

17 THROTTLE SPRING (11020442) (44). Install on throttle pump lever (45) and mounting ring adapter assembly (25).

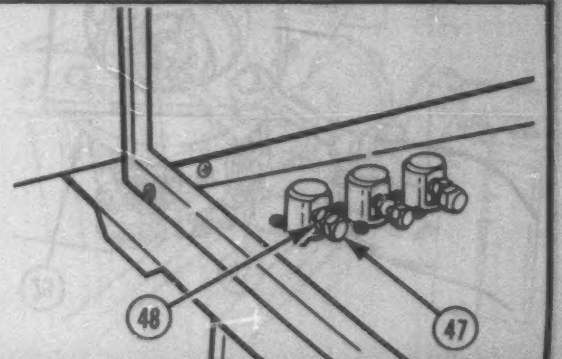




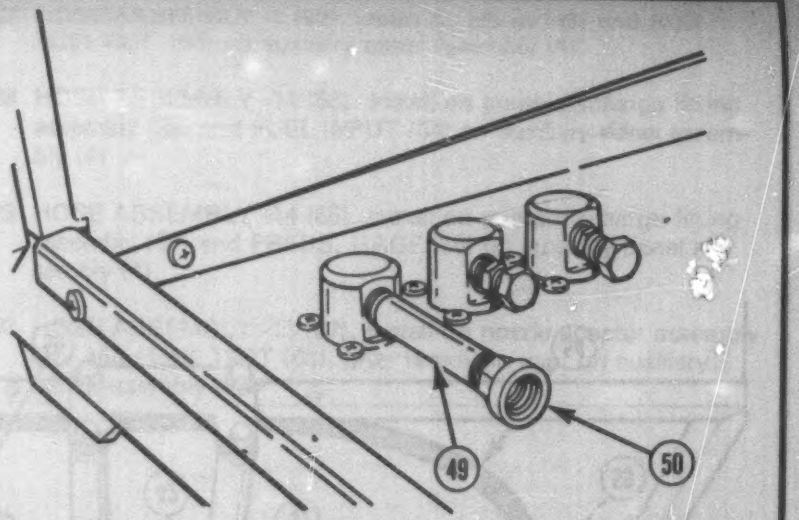
18 CAP (46) LOCATED AT TOP REAR RIGHT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.

19 CAP (47) LOCATED AT TOP REAR LEFT-HAND CORNER OF TRAY AND DISCHARGE BLOCKS ASSEMBLY. Remove.

20 CONNECTOR (48). Remove.

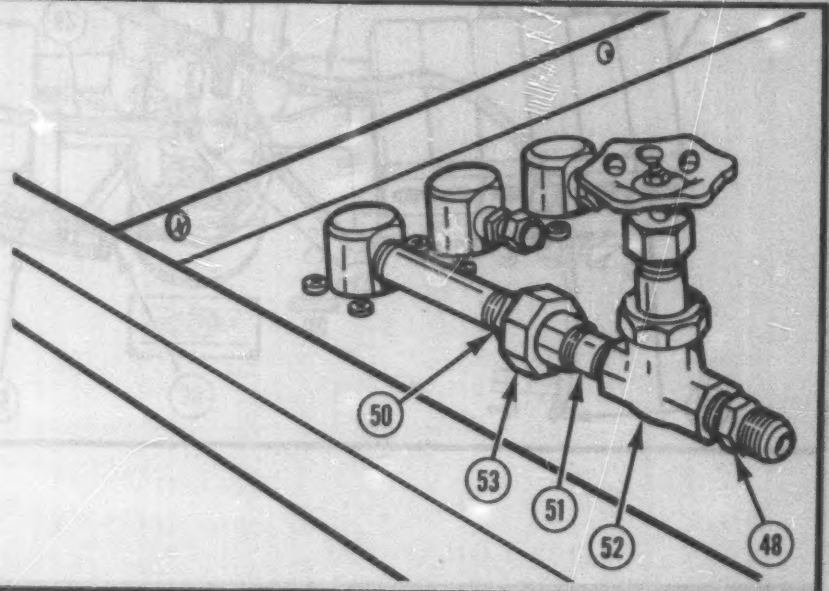


21 NIPPLE (MS51953-59) (49) AND MALE HALF OF UNION (WW-U-531) (50). Install



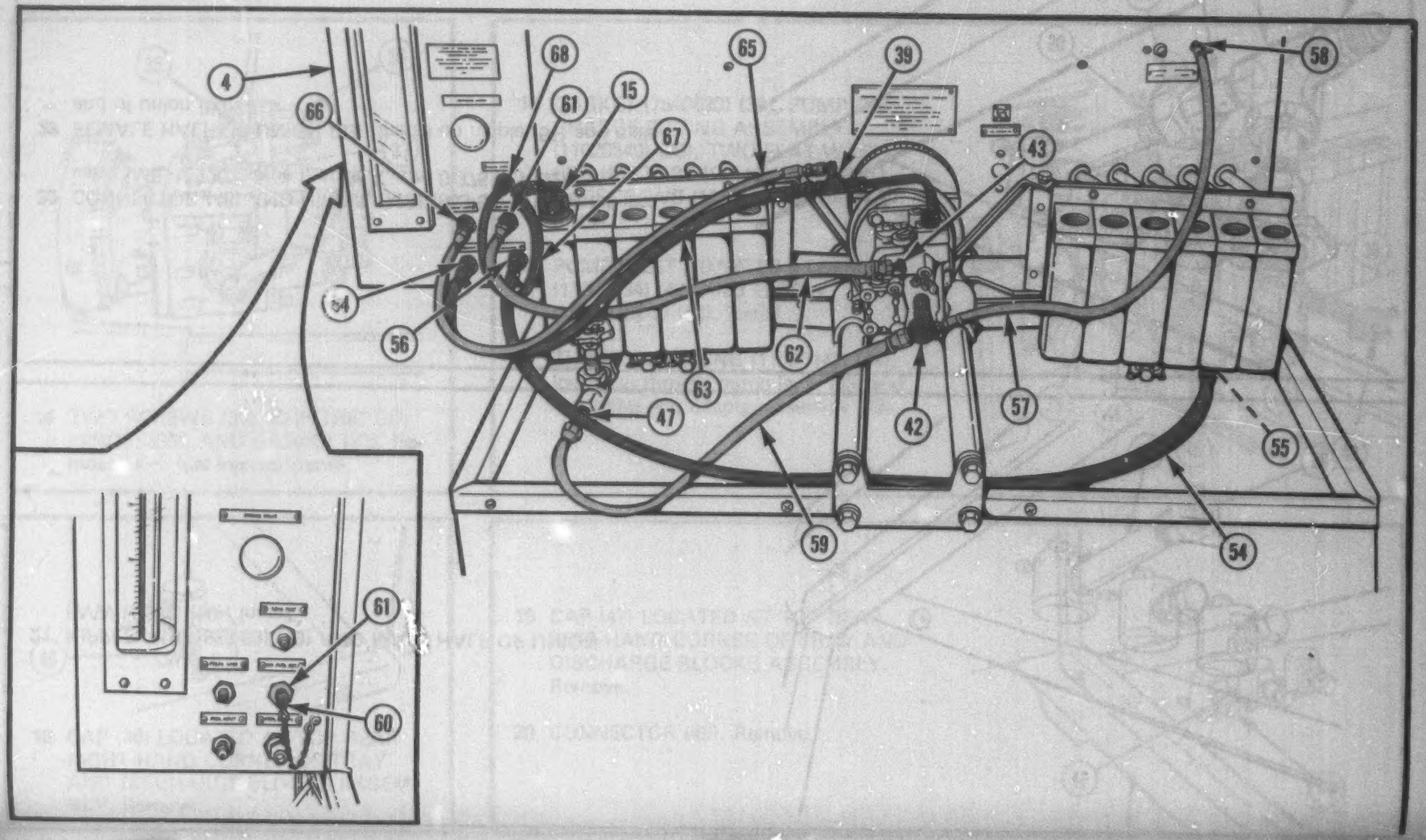
22 CONNECTOR (48) AND NIPPLE (MS51953-52) (51). Install into valve (MIL-V-1202, type I, style A, size 0.375 in.) (52).

23 FEMALE HALF OF UNION (53). Install on nipple (51) and male end of union (50).



2-22. CUMMINS FUEL INJECTOR PUMP (cont)

INSTALLATION (cont)



NOTE

All of the hose assemblies are tagged with the part number 11020361 and the corresponding dash number. For ease when installing, the hose assembly nomenclature includes the dash number.

24 HOSE ASSEMBLY -12 (54). Install on fuel return connector (55) and FUEL OUTLET (56) on auxiliary panel assembly (4).

25 HOSE ASSEMBLY -10 (57). Install on SUPERCHARGER INLET (58) and pump inlet adapter assembly (42).

26 HOSE ASSEMBLY -3 (59). Install on fuel pressure connector (47) and pump inlet adapter assembly (42).

NOTE

If fuel injector pump being tested does not have an auxiliary fuel outlet, omit step 27. Instead, install cap nut (60), that comes with auxiliary panel, on AUX FUEL RET. (61) as illustrated.

27 HOSE ASSEMBLY -1 (62). Install on elbow (43) and AUX FUEL RET. (61) on auxiliary panel assembly (4).

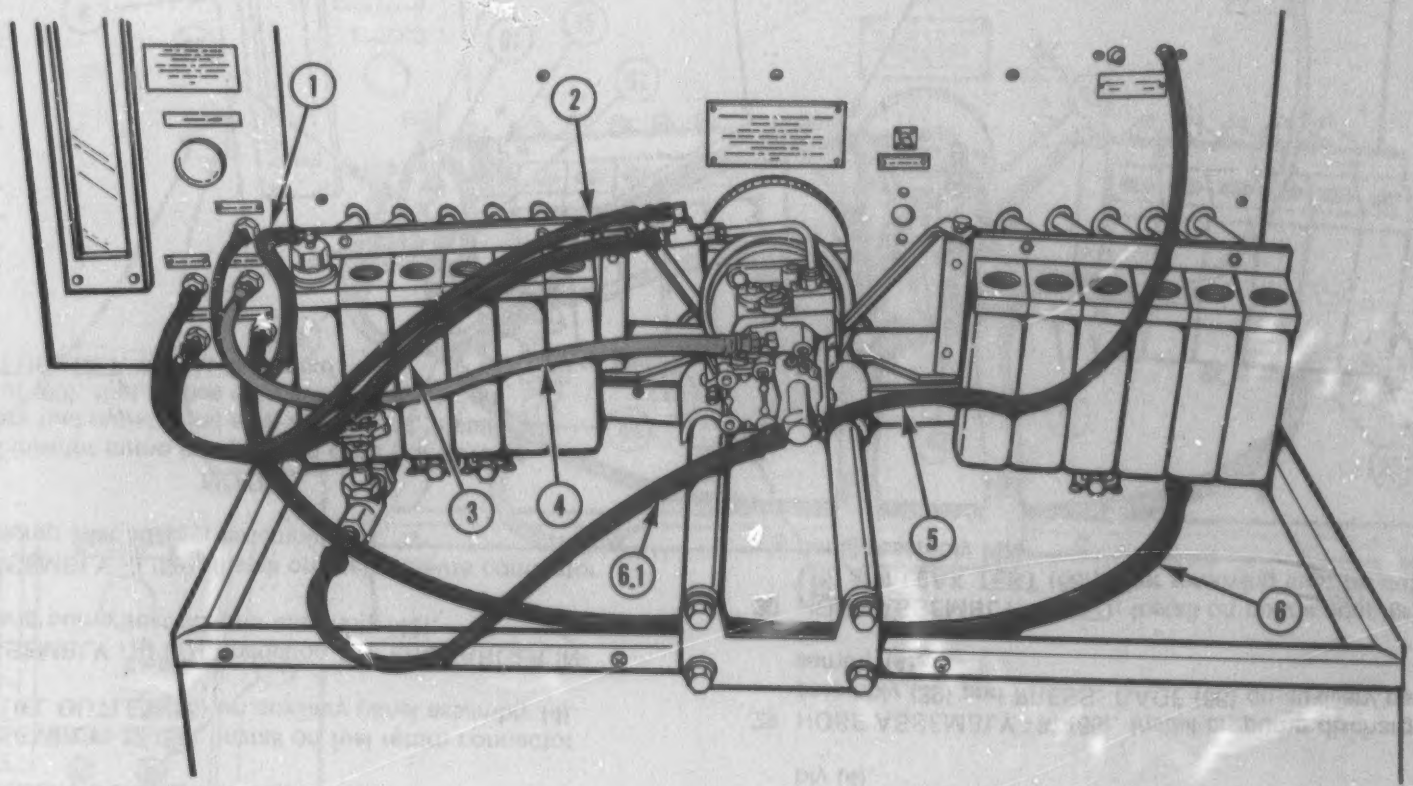
28 HOSE ASSEMBLY -11 (63). Install on pump discharge fitting assembly (39) and FUEL INPUT (64) on auxiliary panel assembly (4).

29 HOSE ASSEMBLY -14 (65). Install on pump discharge fitting assembly (39) and PRESS. GAGE (66) on auxiliary panel assembly (4).

30 HOSE ASSEMBLY -13 (67). Install on nozzle adapter assembly (15) and LEAK TEST (68), after removing cap, on auxiliary panel assembly (4).

2-22. CUMMINS FUEL INJECTOR PUMP (cont)

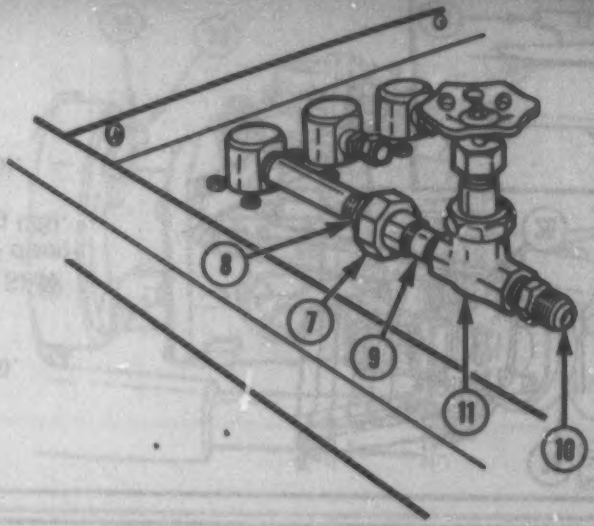
REMOVAL

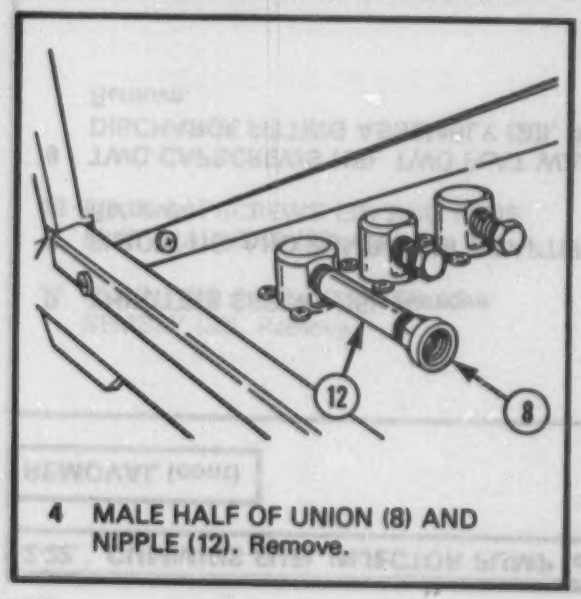


1 SEVEN HOSE ASSEMBLIES (1 THRU 6.1). Remove from fuel injector pump first and allow to drain, then replace cap on LEAK TEST outlet.

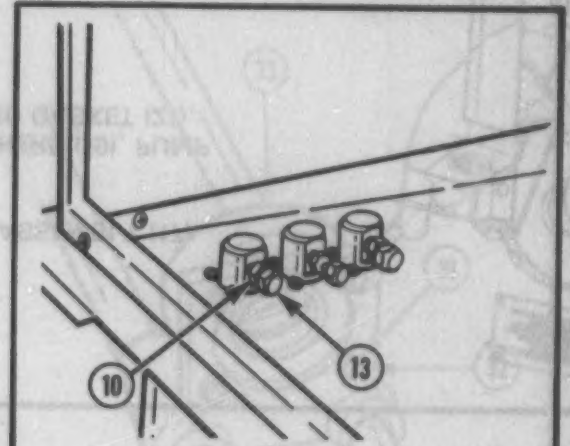
2 FEMALE HALF OF UNION (7). Disengage from male half of union (8).

3 FEMALE HALF OF UNION (7), NIPPLE (9), CONNECTOR (10), AND VALVE (11). Remove.

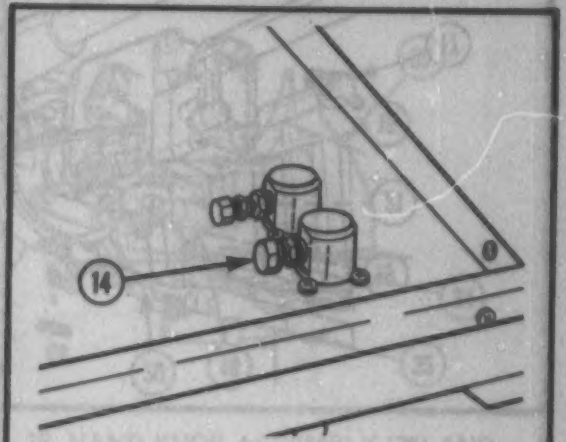




4 MALE HALF OF UNION (8) AND NIPPLE (12). Remove.



5 CONNECTOR (10) AND CAP (13). Install.



6 CAP (14). Install.

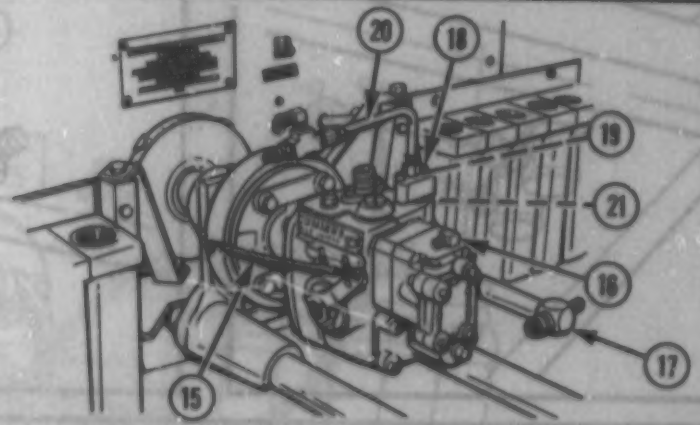
2-22. CUMMINS FUEL INJECTOR PUMP (cont)

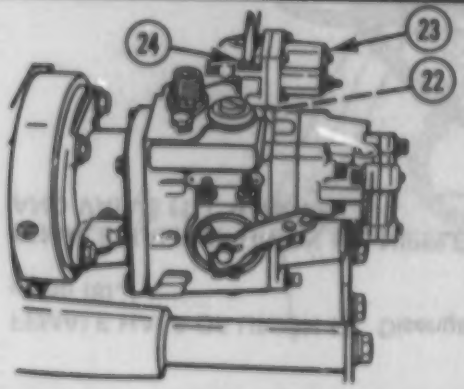
REMOVAL (cont)

7 THROTTLE SPRING (15). Remove.

8 ELBOW (16) AND PUMP INLET ADAPTER ASSEMBLY (17). Remove.

9 TWO CAPSCREWS (18), TWO FLAT WASHERS (19), PUMP DISCHARGE FITTING ASSEMBLY (20), AND GASKET (21). Remove.



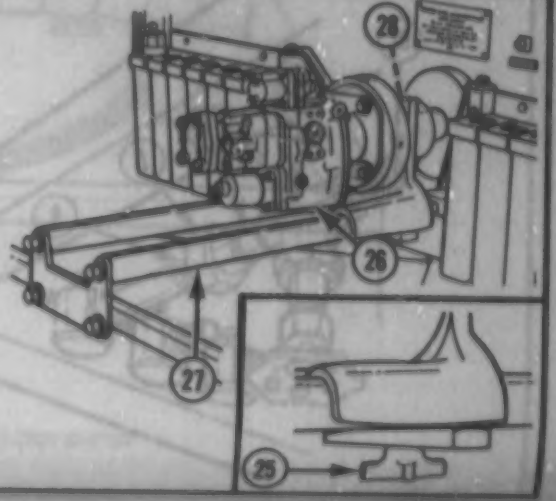


10 GASKET (22), ELECTRIC SOLENOID (23), AND TWO SCREWS (24). Install.

11 HAND KNOB ASSEMBLY (25). Loosen.

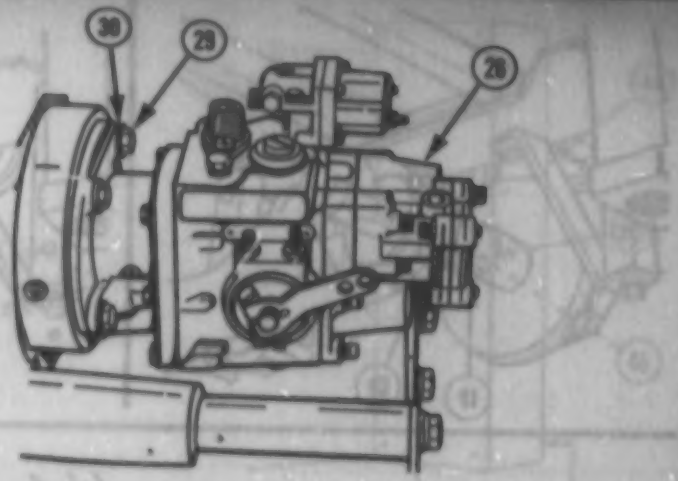
12 FUEL INJECTOR PUMP (26). Slide back on mounting rails (27) to disengage from drive shaft coupling (28).

13 HAND KNOB ASSEMBLY (25). Tighten.



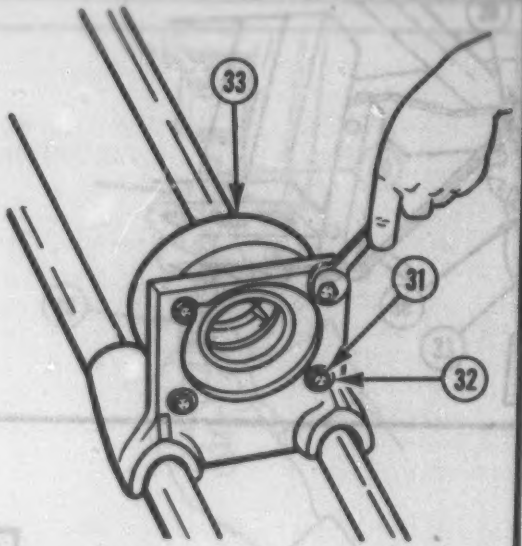
14 FOUR CAPSCREWS (29) AND FOUR FLAT WASHERS (30). Remove.

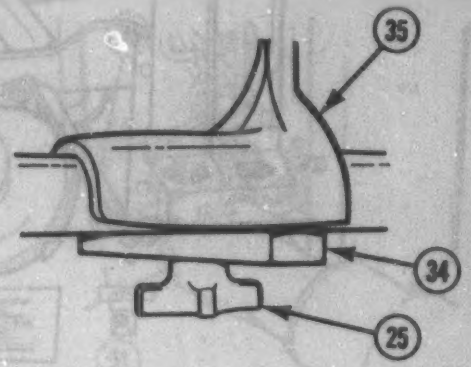
15 FUEL INJECTOR PUMP (26). Remove.



16 FOUR CAPSCREWS (31) AND FOUR FLAT WASHERS (32). Remove.

17 MOUNTING RING ADAPTER ASSEMBLY (33). Remove.



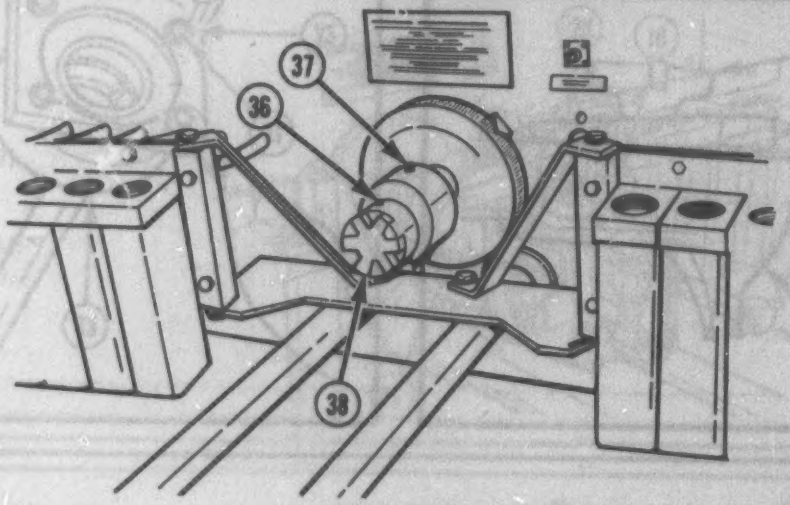


18 HAND KNOB ASSEMBLY (25) AND CLAMP BAR (34). Remove.

19 ADAPTER BRACKET (35). Remove.

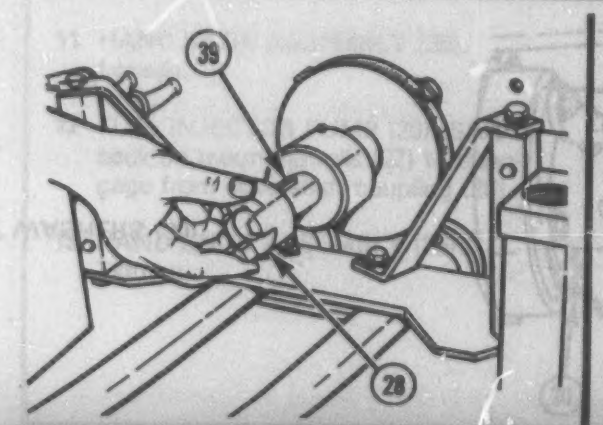
2-22. CUMMINS FUEL INJECTOR PUMP (cont)

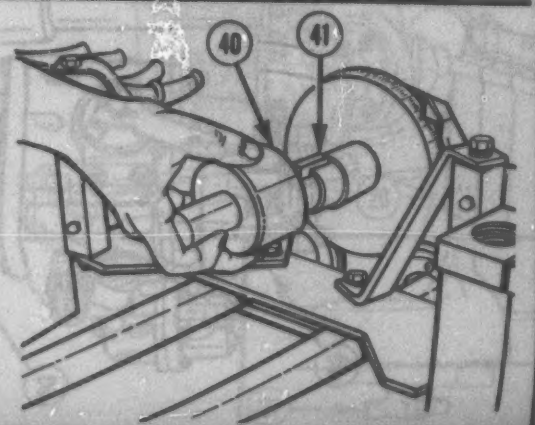
REMOVAL (cont)

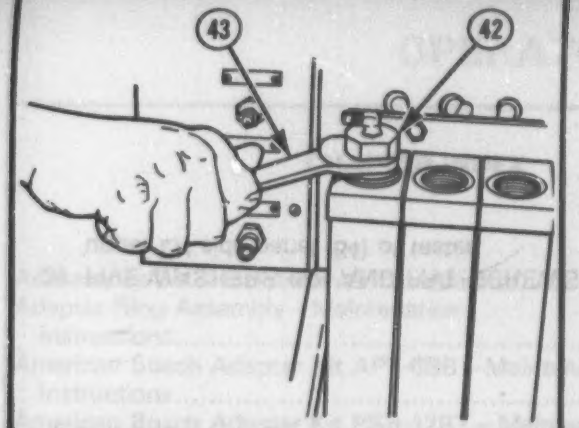


20 TWO SETSCREWS (36 AND 37). Loosen.

21 FLEXIBLE COUPLING INSERT (38), DRIVE SHAFT COUPLING (28), KEY (39), ADAPTER COUPLING (40), AND KEY (41). Remove.







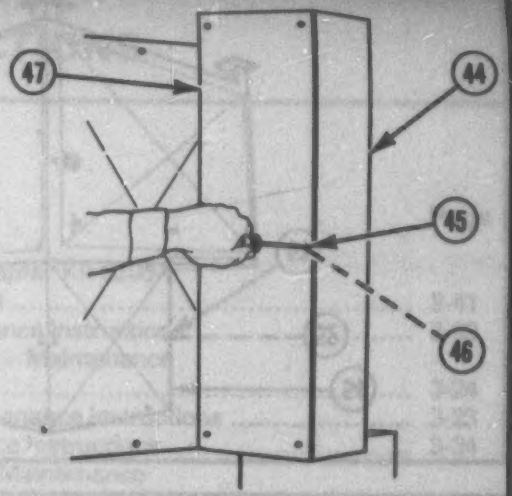
22 NOZZLE ADAPTER ASSEMBLY (42). Remove using nozzle adapter wrench (43).

NOTE
Omit steps 23 and 24 if auxiliary panel assembly does not require repair.

23 AUXILIARY PANEL ASSEMBLY (44).

a. Remove six screws (45) and six washers (46).

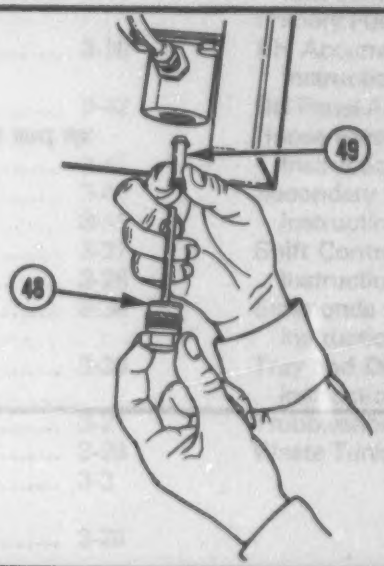
b. Remove back panel (47).

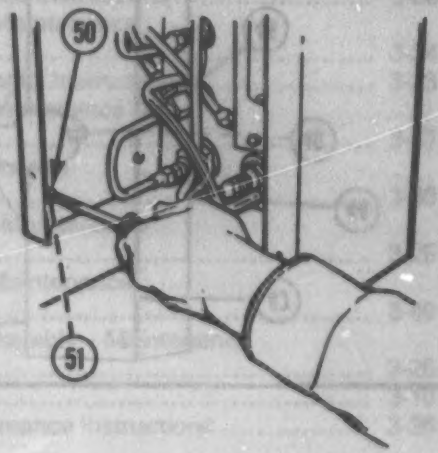


NOTE
Remove plug slowly in order to grasp float.

c. Remove plug (48) and float (49).

d. Reinstall plug (48).





e. Remove five screws (50) and five lockwashers (51).

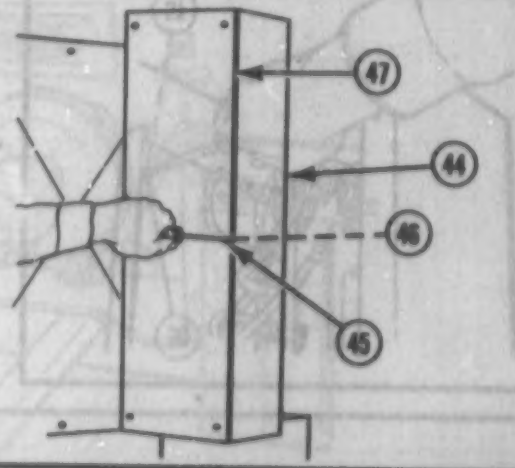
2-22. CUMMINS FUEL INJECTOR PUMP (cont)

REMOVAL (cont)

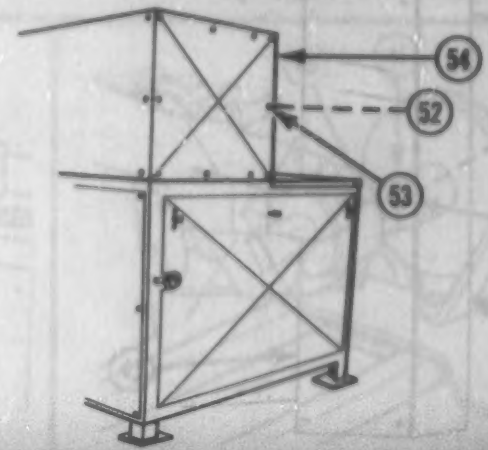
23 AUXILIARY PANEL ASSEMBLY (44). (cont)

f. Remove from tester.

g. Reinstall back panel (47) using six washers (46) and six screws (45).



24 FIVE WASHERS (52) AND FIVE SCREWS (53). Replace on upper LH side panel (54) of tester.



CHAPTER 3
OPERATOR'S MAINTENANCE INSTRUCTIONS

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Section I. LUBRICATION INSTRUCTIONS

3-1. GENERAL

a. Introduction. The lube instructions prescribe cleaning and lube procedures, proper materials for lubing, and lube intervals. The location of fittings is also included. The lube instructions are divided according to lube intervals; i.e., all the monthly lube instructions are together and all the annual lube instructions are together. Overall views showing grease points precede the detailed notes.

b. General Lube Instructions.

(1) Service Intervals. Service intervals specified in the lube instructions are for normal operation and where controlled temperature, humidity, and atmospheric conditions prevail.

(2) Lube Equipment. Each tester is supplied with lube equipment adequate for its maintenance. Clean this equipment with a rag (item 14, app C) before and after use. Use lubricating guns carefully to ensure a proper distribution of grease (item 7, app C).

(3) Grease Points. Lube fittings are shown in the lube instructions. Wipe these items and the surrounding surfaces with a rag (item 14, app C) before grease (item 7, app C) is applied. If a fitting is missing, cover the hole with tape (item 20, app C) to keep the dirt out. A new fitting must be installed as soon as possible.

(4) Lubrication During Maintenance. Only parts requiring periodic lubrication are shown in the lubrication instructions. Other parts of the tester that require lubrication only when they are being reassembled or replaced are not mentioned here. If you suspect that other items may need to be removed and lubricated, notify organizational maintenance.

LUBE INSTRUCTIONS

WARNING

Shut off main power source whenever maintenance is performed.

Intervals are based on normal operation. You should lube more during constant use and less during inactive periods.

Clean fittings before lubricating. Clean parts with cleaning compound (item 3, app C). Dry before lubricating.

Dotted lines indicate grease points on both sides of the equipment.

DO NOT overlubricate; wipe off excess lubricant.

KEY

LUBRICANT	
BR	Grease, Ball and Roller Bearing, MIL-G-18709 (item 7, app C).

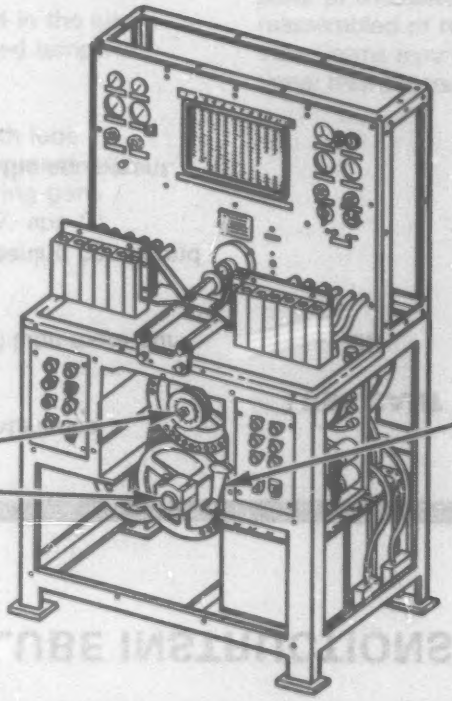
LUBRICATION POINTS

BR ←

MONTHLY LUBING

LUBRICANT

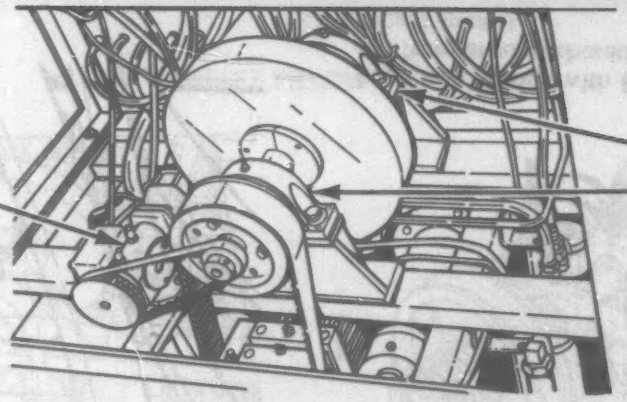
LUBRICANT



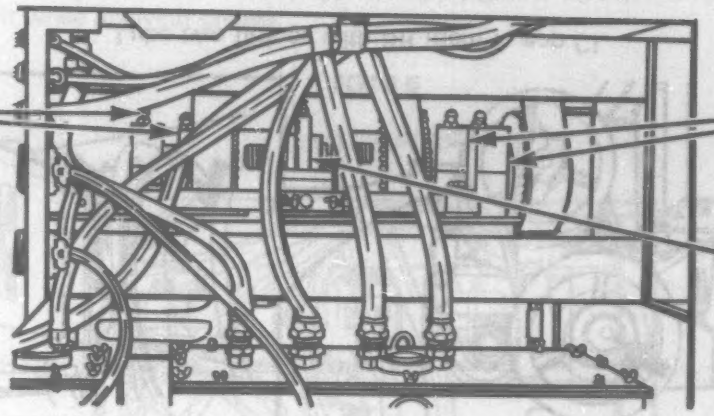
BR SHIFT CONTROL ROD ASSEMBLY (See note 2)

VARIABLE SPEED PULLEY (See note 1) BR

FRONT VIEW



TOP BACK VIEW



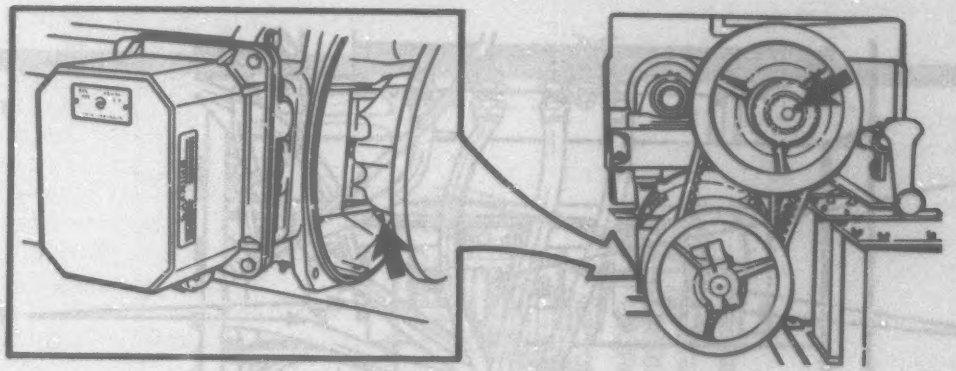
LOWER RIGHT SIDE VIEW

(PANELS REMOVED FOR CLARITY)

MONTHLY NOTES

NOTE 1

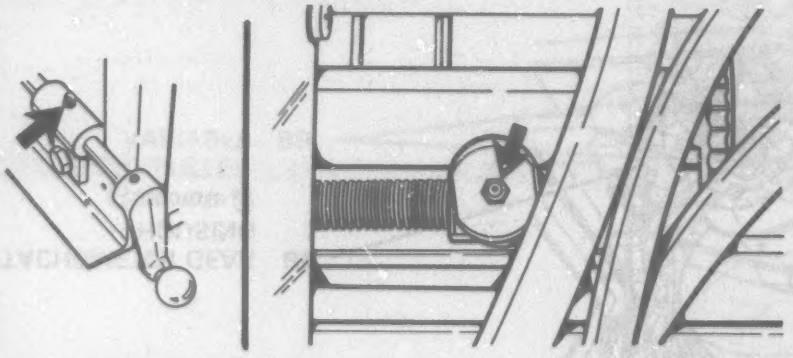
VARIABLE SPEED PULLEY



Lube two fittings with BR (item 7, app C).

NOTE 2

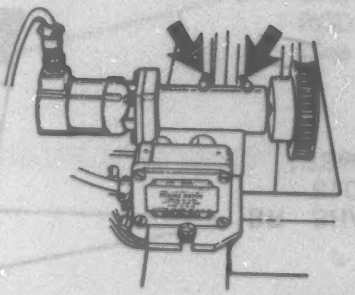
SHIFT CONTROL ROD ASSEMBLY



Lube with BR (item 7, app C).

NOTE 3

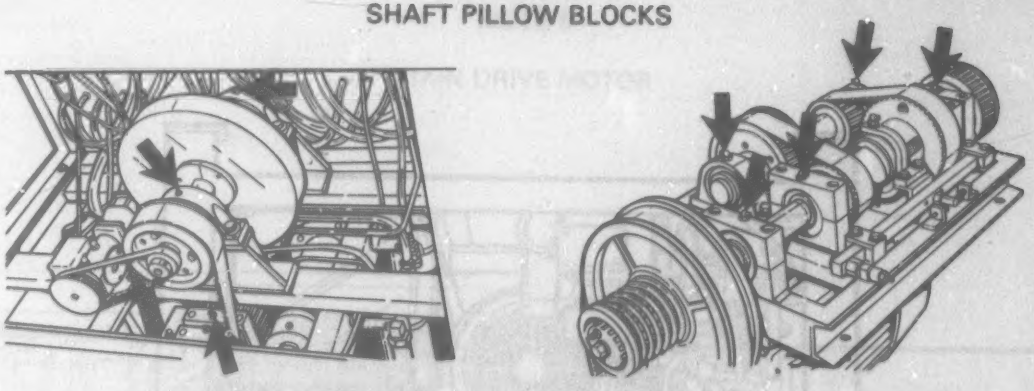
TACHOMETER GEAR HOUSING



Lube two fittings with BR (item 7, app C). Apply grease until forced out from around shouldered shaft at rear of gear box. Wipe off excess grease.

NOTE 4

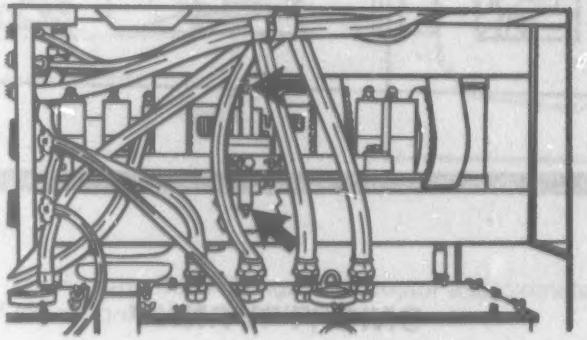
SHAFT PILLOW BLOCKS



Lube eight fittings with BR (item 7, app C). Apply grease slowly and revolve shouldered shaft while applying grease.

NOTE 5

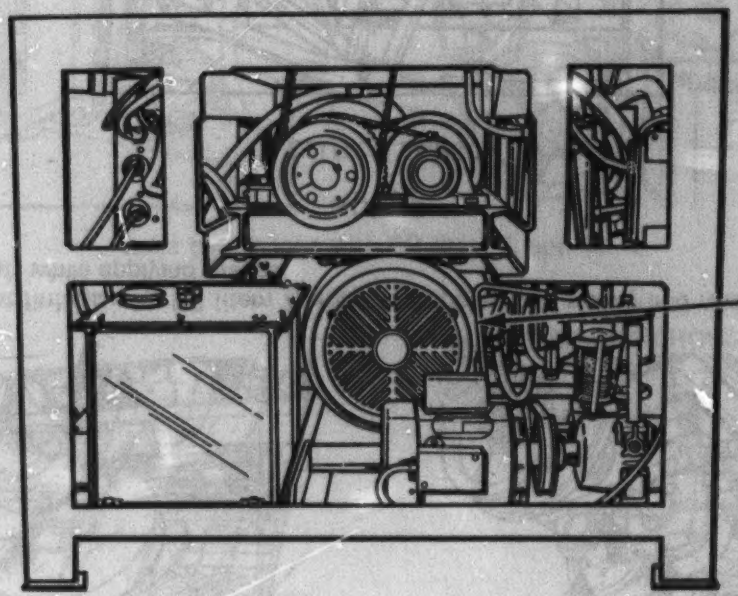
CLUTCH FORK



Lube two fittings with BR (item 7, app C).

ANNUAL LUBING

LUBRICANT



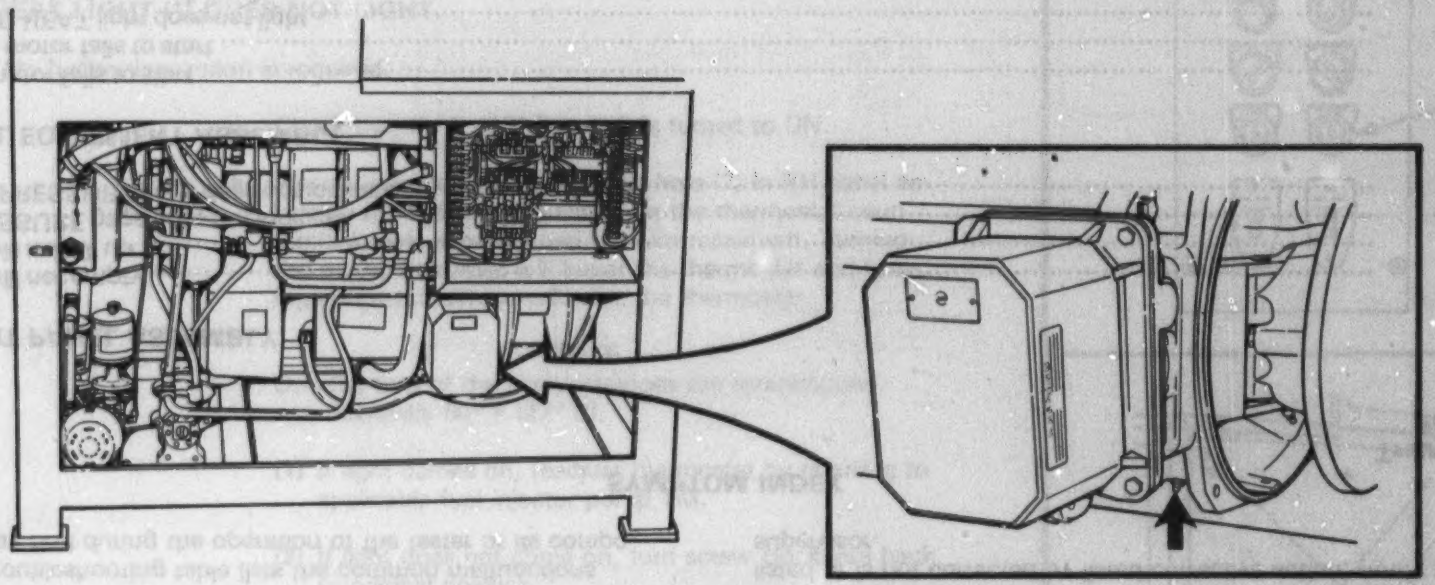
BR MAIN DRIVE MOTOR
(See note 6)

LOWER BACK VIEW

ANNUAL NOTE

NOTE 6

MAIN DRIVE MOTOR



Using BR (item 7, app C) lube front fittings. Run motor approximately 5 minutes to relieve bearings of excess grease. Wipe off excess grease.

Section II. TROUBLESHOOTING

3-2. TROUBLESHOOTING INFORMATION

a. The symptom index can be used as a quick guide to troubleshooting. Common malfunctions are listed in alphabetical order with a page number reference to the troubleshooting table where a test or inspection and corrective action are provided.

b. The troubleshooting table lists the common malfunctions which you may find during the operation of the tester or its components. You should perform the tests or inspections and corrective actions in the order listed.

c. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective action, notify your supervisor.

SYMPTOM INDEX

	Troubleshooting Procedure (Page)
INSTRUMENT PANEL ASSEMBLY	
Burettes will not empty	3-19
Burettes will not fill up	3-19
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LH CONTROL EQUIPMENT ASSEMBLY	
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RH CONTROL EQUIPMENT ASSEMBLY	
Counter circuit does not function when START COUNT button is pressed	3-13
FUEL HEAT light does not light	3-11
LUBE HEAT light does not light	3-12
24-v current output is not available at 24 VOLTS DC outlet assembly	3-13

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION

RH CONTROL EQUIPMENT ASSEMBLY

1. FUEL HEAT LIGHT (1) DOES NOT LIGHT.

No further inspection is required.

a. Check that FUEL HEAT switch is turned to ON.

b. Insert a screwdriver through the hole (2) in RH panel assembly (3) and turn the screw on the thermostat counterclockwise, allowing one full turn maximum. Turning the screw clockwise will lower the thermostat and turning counterclockwise will raise the thermostat.

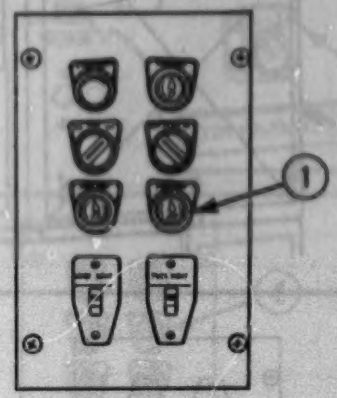
NOTE

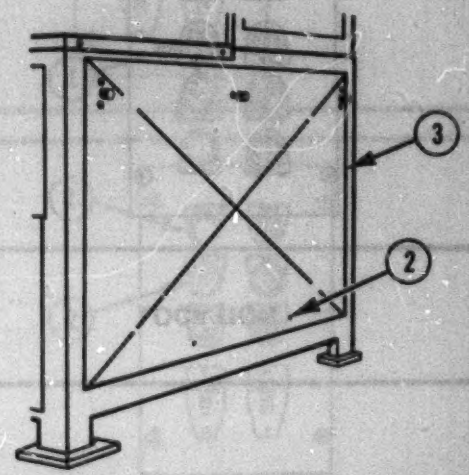
One full turn of the screw changes the temperature approximately 80° F (27° C).

(1) If light comes on, readjust thermostat by referring to applicable fuel injector pump TM.

(2) If light does not come on, turn screw clockwise back to original position.

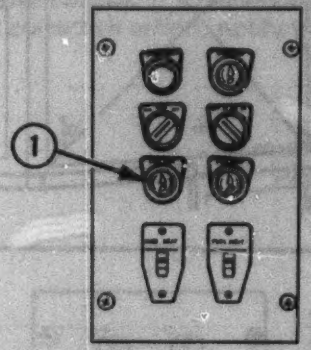
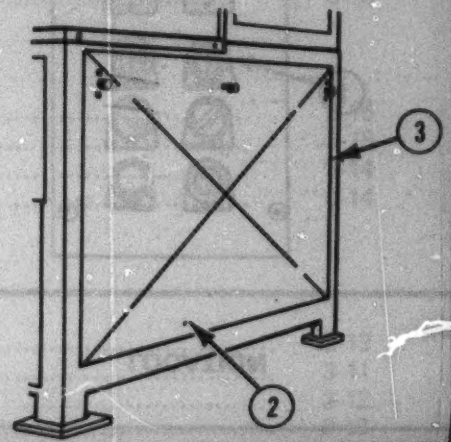
c. If the above procedures do not correct fault, notify organizational maintenance.





3-2. TROUBLESHOOTING INFORMATION (cont)

TROUBLESHOOTING (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
RH CONTROL EQUIPMENT ASSEMBLY (cont) **2. LUBE HEAT LIGHT (1) DOES NOT LIGHT.** No further inspection is required. a. Check that LUBE HEAT switch is turned to ON. b. Insert a screwdriver through the hole (2) in RH panel assembly (3) and turn the screw on the thermostat counterclockwise, allowing one full turn maximum. Turning the screw clockwise will lower the thermostat and turning counterclockwise will raise the thermostat. **NOTE** One full turn of the screw changes the temperature approximately 80° F (27° C). (1) If light comes on, readjust thermostat by referring to applicable fuel injector pump TM. (2) If light does not come on, turn screw clockwise back to original position. c. If the above procedures do not correct fault, notify organizational maintenance.	 

3. 24-V CURRENT OUTPUT IS NOT AVAILABLE AT 24 VOLTS DC OUTLET ASSEMBLY (1).

Check to see if 24-VDC switch (2) is turned OFF.

a. Turn 24-VDC switch to ON position.

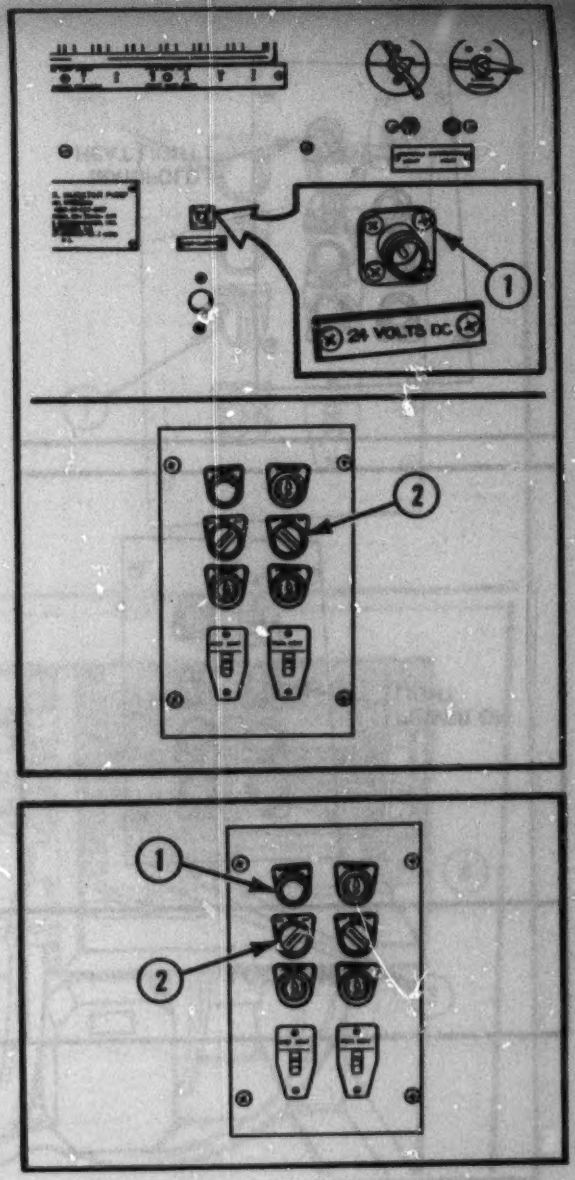
b. If the above procedure does not correct fault, notify general support maintenance.

4. COUNTER CIRCUIT DOES NOT FUNCTION WHEN START COUNT BUTTON (1) IS PRESSED.

Check to see if 500-1000-OFF count switch (2) is in OFF position.

a. Turn to 500 or 1000.

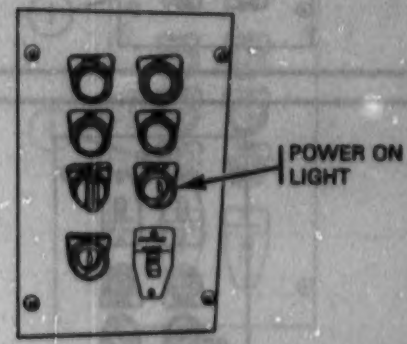
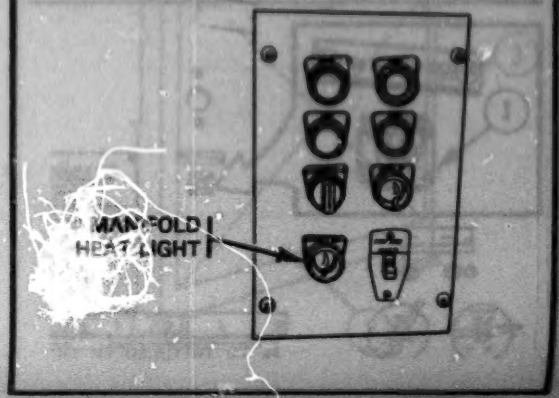
b. If the above procedure does not correct fault, notify general support maintenance.



TM 9-4910-387-14-1

3-2. TROUBLESHOOTING INFORMATION (cont)

TROUBLESHOOTING (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
LH CONTROL EQUIPMENT ASSEMBLY	
5. POWER ON LIGHT DOES NOT LIGHT. No further inspection is required. a. Check to see if main power source is on. b. If the above procedure does not correct fault, notify organizational maintenance.	
6. MANIFOLD HEAT LIGHT DOES NOT LIGHT. No further inspection is required. a. If manifold temperature is higher than setting, allow to cool. b. If the above procedure does not correct fault, notify organizational maintenance.	

7. MAIN DRIVE MOTOR FAILS TO START.

Step 1. Check to see if main power source is on.

Turn main power source on.

Step 2. Check to see if FORWARD-OFF-REVERSE switch (1) is in OFF position.

Turn to FORWARD or REVERSE position.

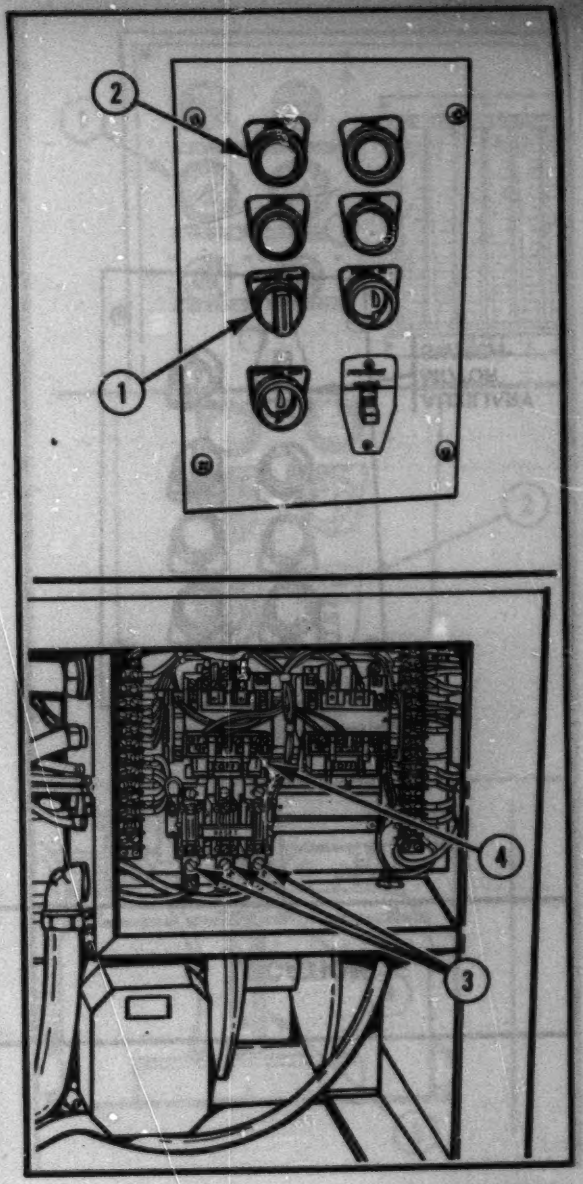
Step 3. Check to see if START button (2) is on.

Press START button.

Step 4. Check to see if thermal overloads (3) on magnetic starter (4) are open.

a. Reset thermal overloads.

b. If the above procedures do not correct fault, notify general support maintenance.



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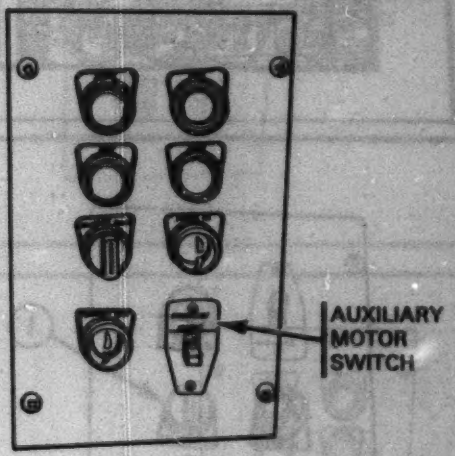
3-2. TROUBLESHOOTING INFORMATION (cont)

TROUBLESHOOTING (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
LH CONTROL EQUIPMENT ASSEMBLY (cont) **8. AUXILIARY MOTOR FAILS TO START.** **Step 1.** Check to see if main power source is on. Turn main power source on. **Step 2.** Check to see if AUXILIARY MOTOR switch is OFF. a. Turn AUXILIARY MOTOR switch ON. b. If the above procedures do not correct fault, notify general support maintenance.	

INSTRUMENT PANEL ASSEMBLY

9. FUEL PRESSURE GAGE (1) DOES NOT INDICATE.

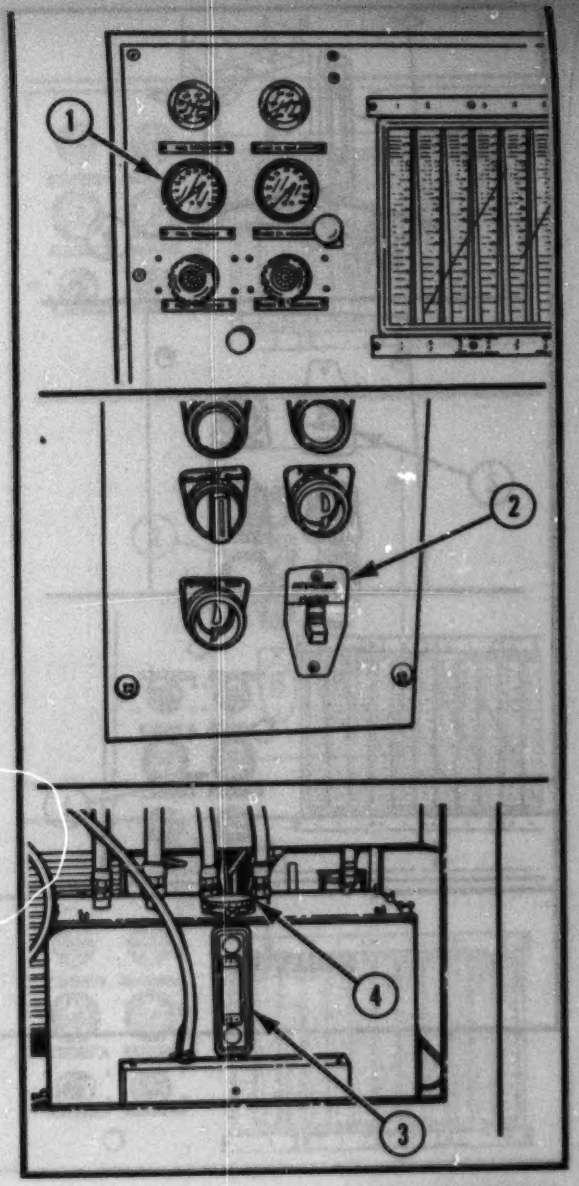
Step 1. Check to see if AUXILIARY MOTOR switch (2) is in OFF position.

Turn AUXILIARY MOTOR switch to ON.

Step 2. Remove RH panel assembly and check fuel level sight gage (3).

a. If fuel tank assembly is low or empty, remove cap (4) and fill with fuel (item 13, app C).

b. If the above procedures do not correct fault, notify organizational maintenance.



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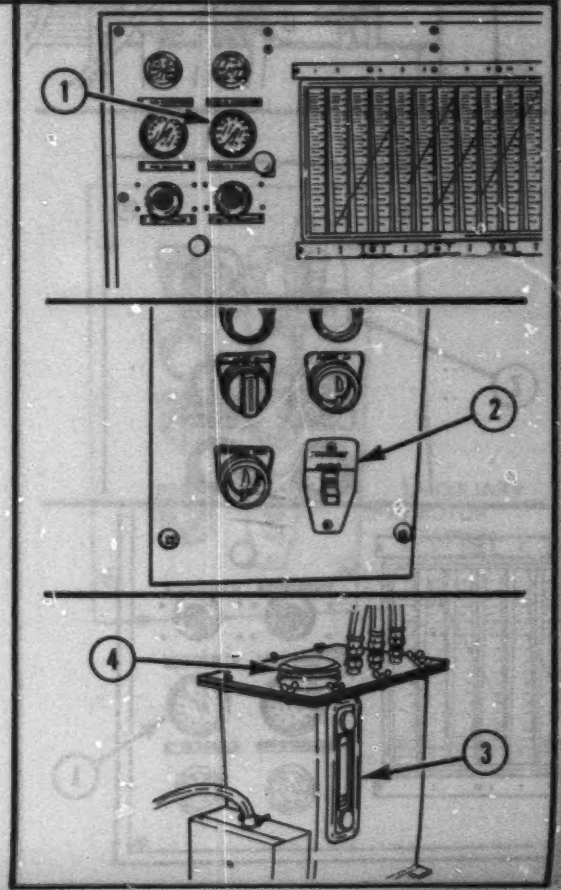
3-2. TROUBLESHOOTING INFORMATION (cont)

TROUBLESHOOTING (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
INSTRUMENT PANEL ASSEMBLY (cont)	
10. LUBE OIL PRESSURE GAGE (1) DOES NOT INDICATE. **Step 1.** Check to see if AUXILIARY MOTOR switch (2) is in OFF position. Turn AUXILIARY MOTOR switch to ON. **Step 2.** Remove RH panel assembly and check lube oil level sight gage (3). **a.** If lube oil tank assembly is low or empty, remove cap (4) and fill with lube oil (item 11, app C). **b.** If the above procedures do not correct fault, notify organizational maintenance.	

11. BURETTES (1) WILL NOT FILL UP.

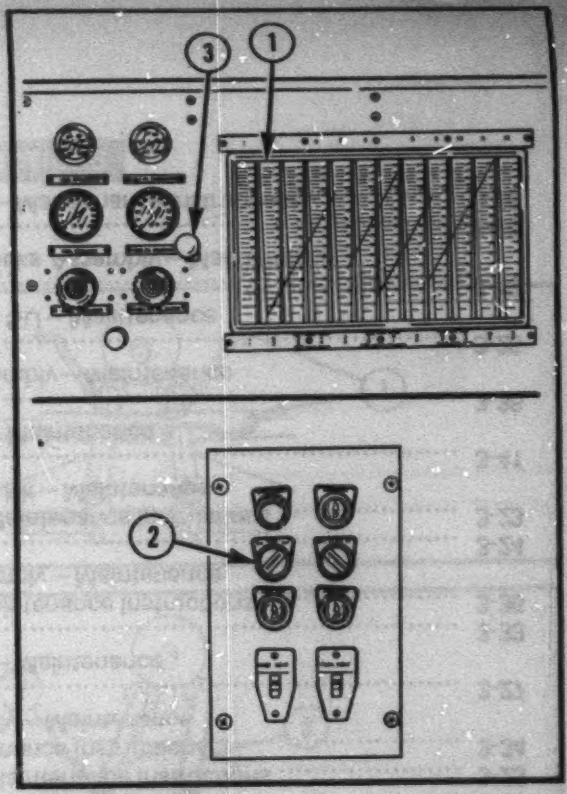
Step 1. Check to see if 500-1000-OFF count switch (2) is in OFF position.

Turn to 500 or 1000.

Step 2. Check to see if dumping lever (3) is pushed in.

a. Pull out dumping lever.

b. If the above procedures do not correct fault, notify general support maintenance.

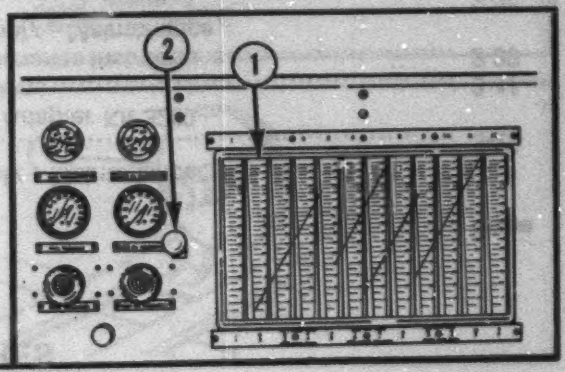


12. BURETTES (1) WILL NOT EMPTY.

Check to see if dumping lever (2) is pulled out.

a. Push dumping lever in.

b. If the above procedure does not correct fault, notify general support maintenance.



Section III. MAINTENANCE PROCEDURES

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American Bosch Adapter Kit PSB-12BT—Maintenance Instructions	3-40
American Bosch Adapter Kit PSB-6A and PSB-6—Maintenance Instructions	3-40
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WARNING

Shut off main power source whenever maintenance is performed.

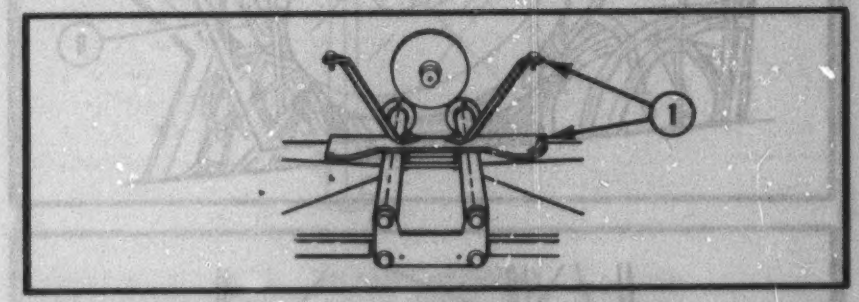
3-3. FUEL INJECTOR PUMP TESTER MISCELLANEOUS PARTS – MAINTENANCE INSTRUCTIONS

SERVICING AND ADJUSTING

1 ACCUMULATOR MOUNTING PARTS (1).

a. Adjustment will be made when installing fuel injector pumps (p 2-26 thru p 2-166). The adjustment will vary with each fuel injector pump tested.

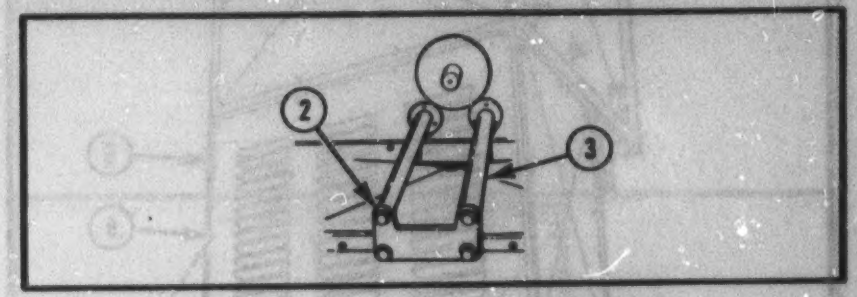
b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



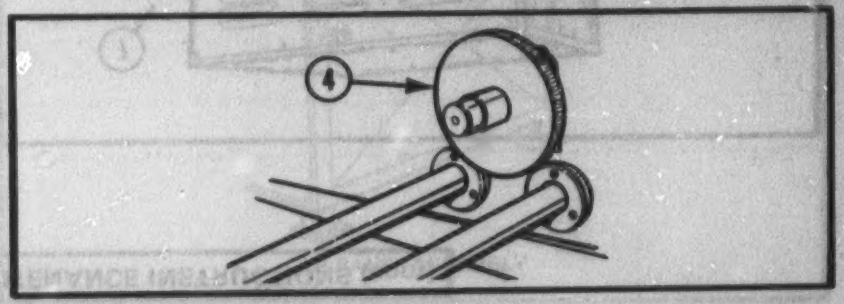
2 MOUNTING RAILS PARTS (2).

a. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

b. Coat mounting rails (3) lightly with general purpose lubricating oil (item 12, app C).



3 PLATE PARTS (4). Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



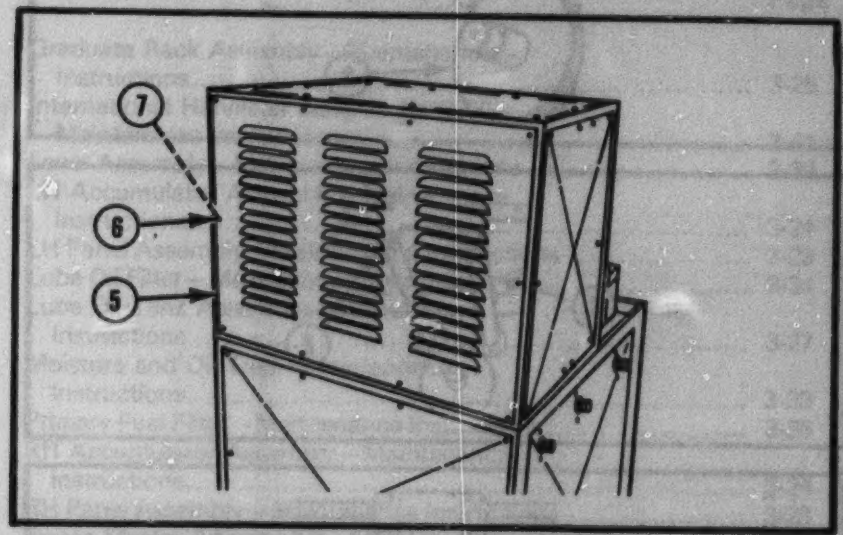
3-3. FUEL INJECTOR PUMP TESTER MICELLANEOUS PARTS—MAINTENANCE INSTRUCTIONS (cont)

SERVICING AND ADJUSTING (cont)

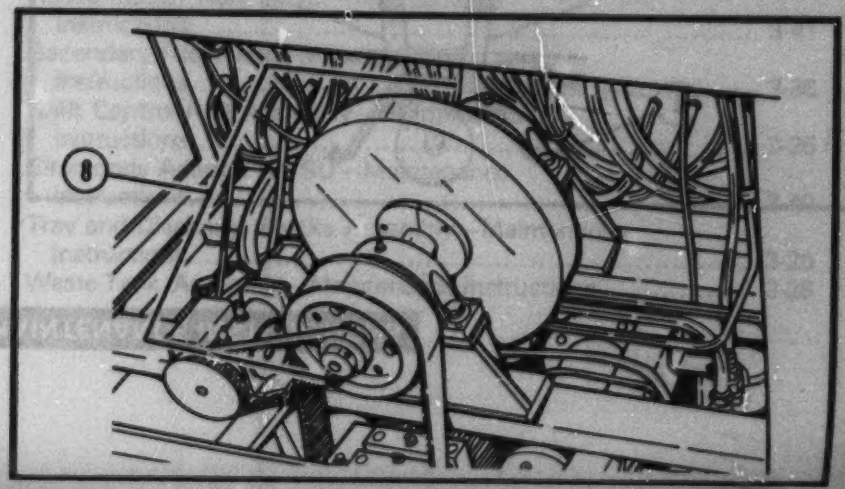
4 UPPER BACK PANEL (5).

a. Remove 10 screws (6), 10 washers (7), and remove.

b. Clean with cleaning compound (item 3, app C).



5 SHOULDERED SHAFT PARTS (8). Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



3-4. RH PANEL ASSEMBLY – MAINTENANCE INSTRUCTIONS

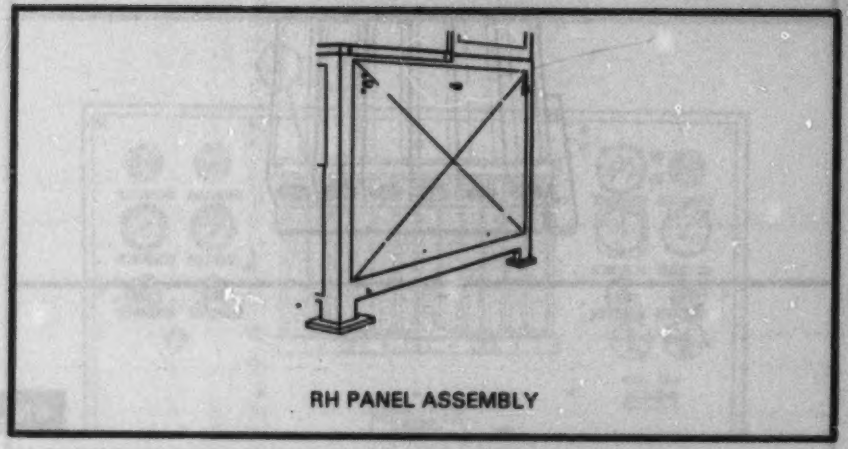
INSPECTION AND SERVICING

RH PANEL ASSEMBLY.

a. Check for dirt and grease.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

c. Paint with enamel (item 6, app C) if needed, using paint brush.



RH PANEL ASSEMBLY

3-5. LH PANEL ASSEMBLY – MAINTENANCE INSTRUCTIONS

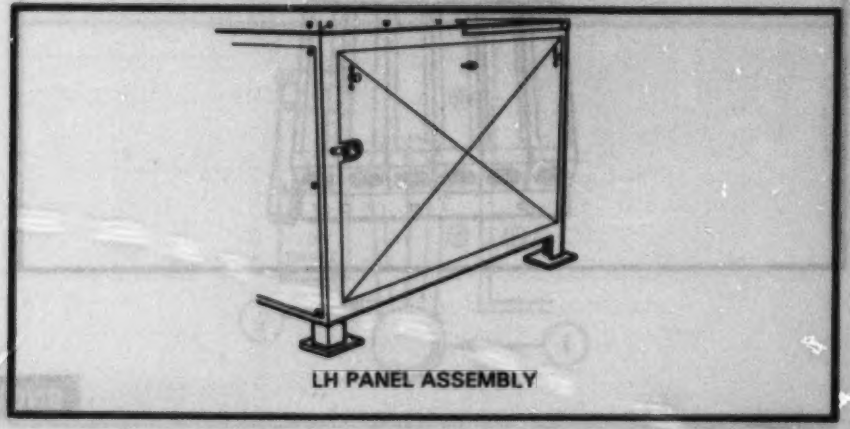
INSPECTION AND SERVICING

LH PANEL ASSEMBLY.

a. Check for dirt and grease.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

c. Paint with enamel (item 6, app C) if needed, using paint brush.



LH PANEL ASSEMBLY

3-6. RH ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS

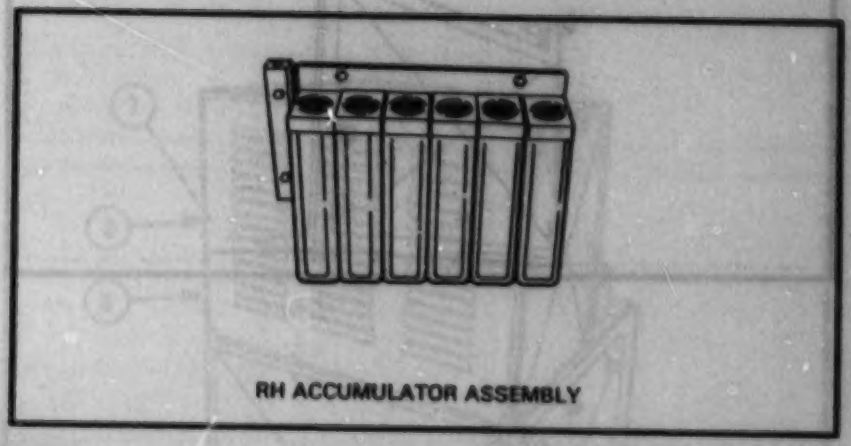
INSPECTION AND SERVICING

RH ACCUMULATOR ASSEMBLY.

a. Check for dirt and grease.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

c. Paint with enamel (item 6, app C) if needed, using paint brush.



RH ACCUMULATOR ASSEMBLY

3-7. LH ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS

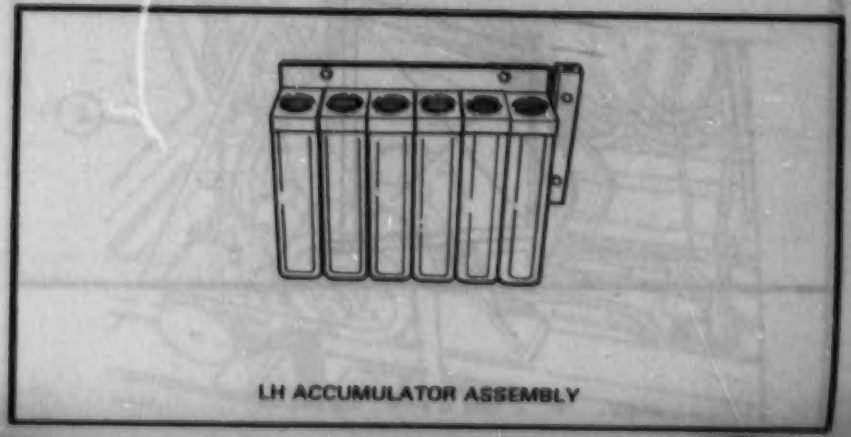
INSPECTION AND SERVICING

LH ACCUMULATOR ASSEMBLY.

a. Check for dirt and grease.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

c. Paint with enamel (item 6, app C) if needed, using paint brush.



LH ACCUMULATOR ASSEMBLY

3-8. GRADUATE RACK ASSEMBLY—MAINTENANCE INSTRUCTIONS

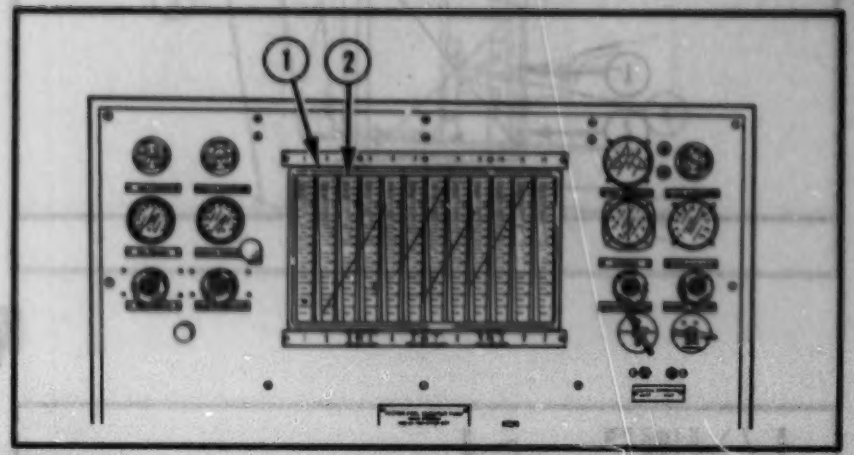
INSPECTION AND SERVICING

GRADUATE RACK ASSEMBLY (1).

a. Check for cracked or broken burettes (2). Notify general support maintenance.

b. Check for dirt and grease.

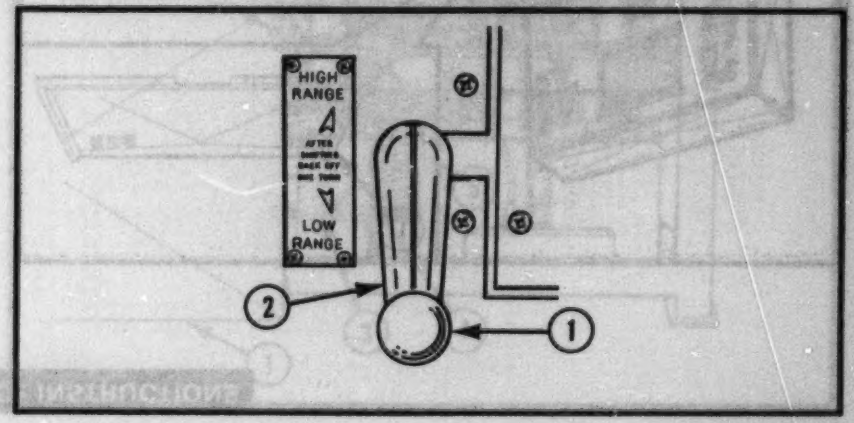
c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



3-9. SHIFT CONTROL ROD ASSEMBLY—MAINTENANCE INSTRUCTIONS

SERVICING

SHIFT CONTROL ROD ASSEMBLY. Clean ball knob (1) and hand crank (2) with cleaning compound (item 3, app C) using rag (item 14, app C).



3-10. TRAY AND DISCHARGE BLOCKS ASSEMBLY—MAINTENANCE INSTRUCTIONS

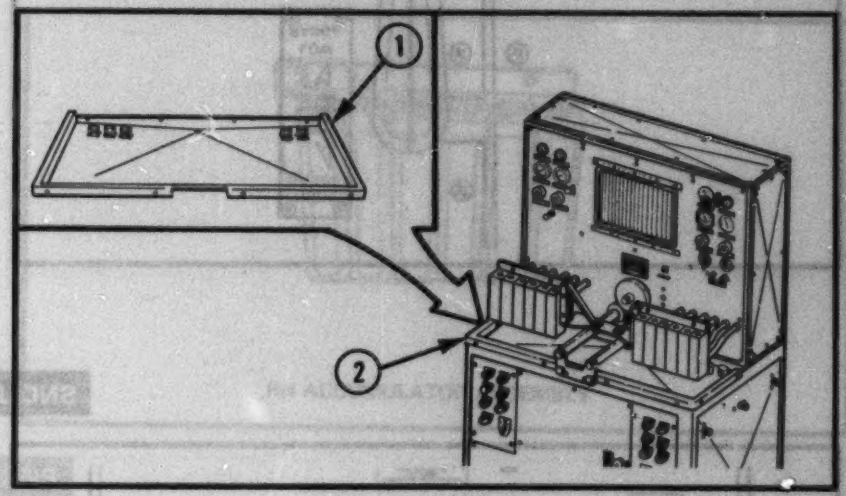
INSPECTION AND SERVICING

TRAY AND DISCHARGE BLOCKS ASSEMBLY (1).

a. Check for damaged fittings and foreign material in tray (2). Remove foreign materials. Report damaged fittings to general support maintenance.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

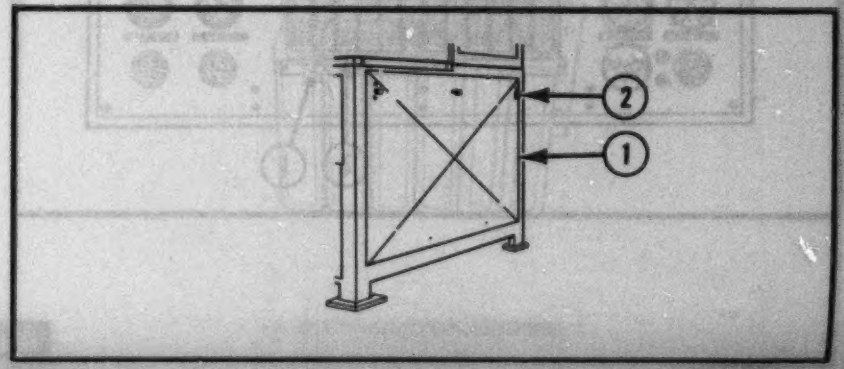
c. Paint with enamel (item 6, app C) if needed, using paint brush.



3-11. WASTE TANK ASSEMBLY—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

1 RH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.



2 WASTE TANK ASSEMBLY (3).

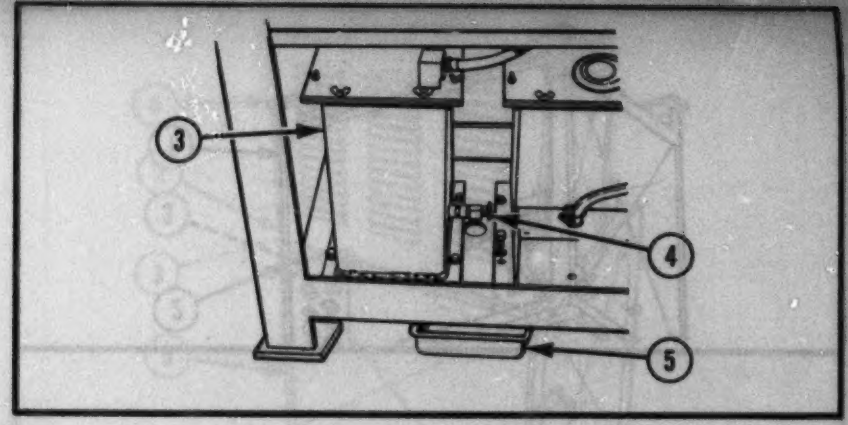
NOTE

Valve (4) should be closed after draining is completed.

a. Drain waste oil by opening valve (4) and emptying contents of tank into an available minimum-size 3-gal. (11.36-l) pan (5).

b. Check for dirt and grease.

c. Clean outer surface with cleaning compound (item 3, app C) using rag (item 14, app C).



3-12. LUBE OIL TANK ASSEMBLY – MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

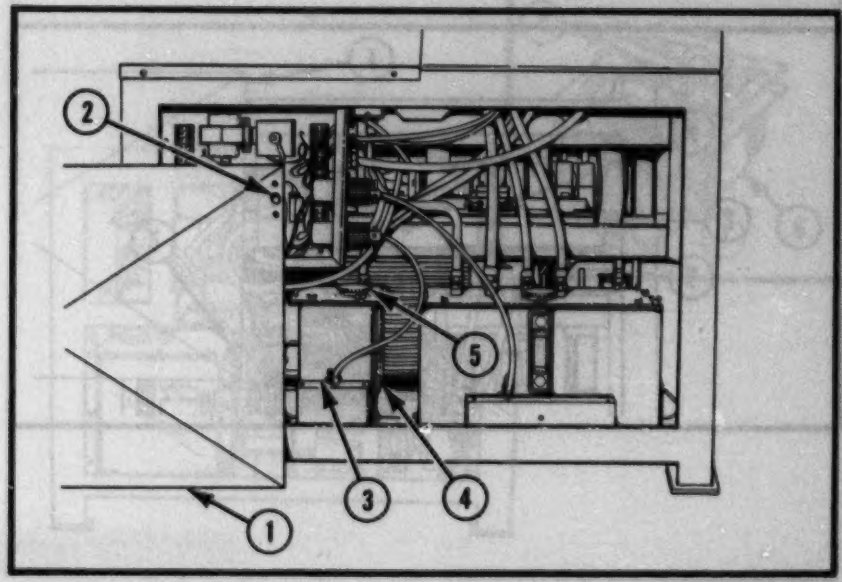
1 RH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.

2 LUBE OIL TANK ASSEMBLY (3).

a. Check lube oil level sight gage (4) to determine level of lubricating oil in tank. Remove cap (5) and fill as required with lubricating oil (item 11, app C).

b. Check for dirt and grease.

c. Clean outer surface with cleaning compound (item 3, app C) using rag (item 14, app C).



ADJUSTMENT

For adjustment procedures of the lube oil tank assembly, refer to page 3-12.

3-13. FUEL TANK ASSEMBLY—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

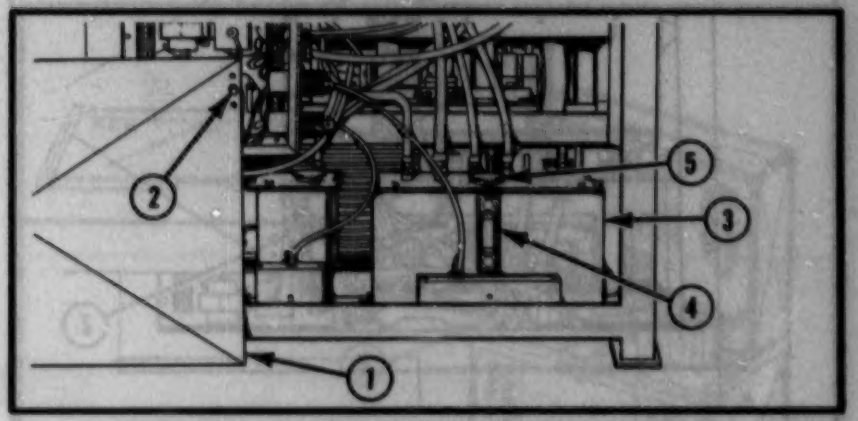
1 RH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.

2 FUEL TANK ASSEMBLY (3).

a. Check fuel level sight gage (4) to determine level of fuel in tank. Remove cap (5) and fill as required with fuel (item 13, app C).

b. Check for dirt and grease.

c. Clean outer surface with cleaning compound (item 3, app C) using rag (item 14, app C).



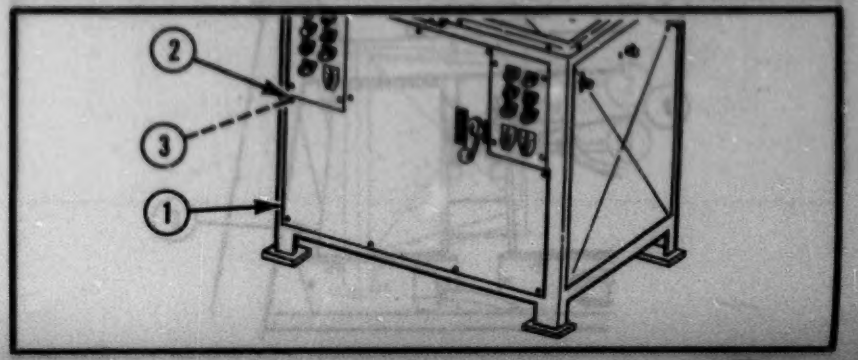
ADJUSTMENT

For adjustment procedures of the fuel tank assembly, refer to page 3-11.

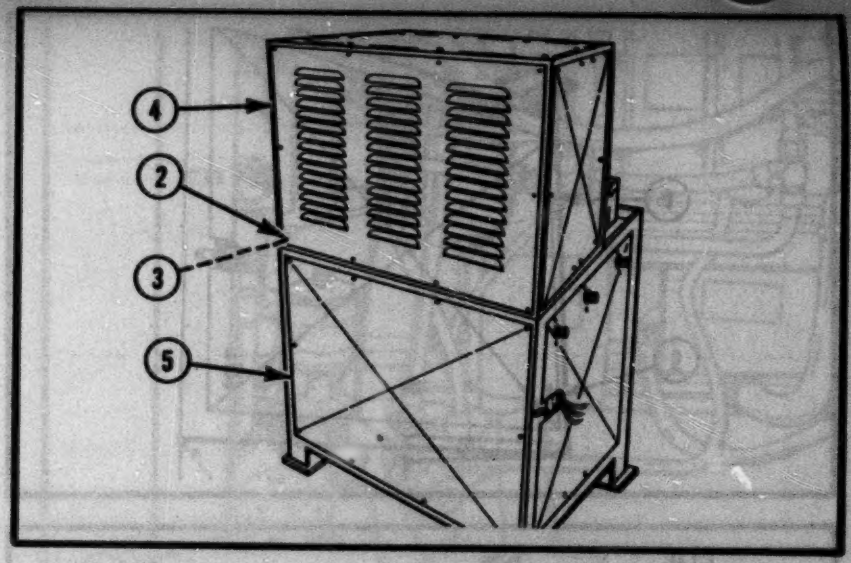
3-14. DRIVE UNIT ASSEMBLY—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

1 FRONT PANEL (1). Remove 12 screws (2), 12 washers (3), and remove.



2 UPPER AND LOWER BACK PANELS (4 AND 5). Remove 20 screws (2), 20 washers (3), and remove.

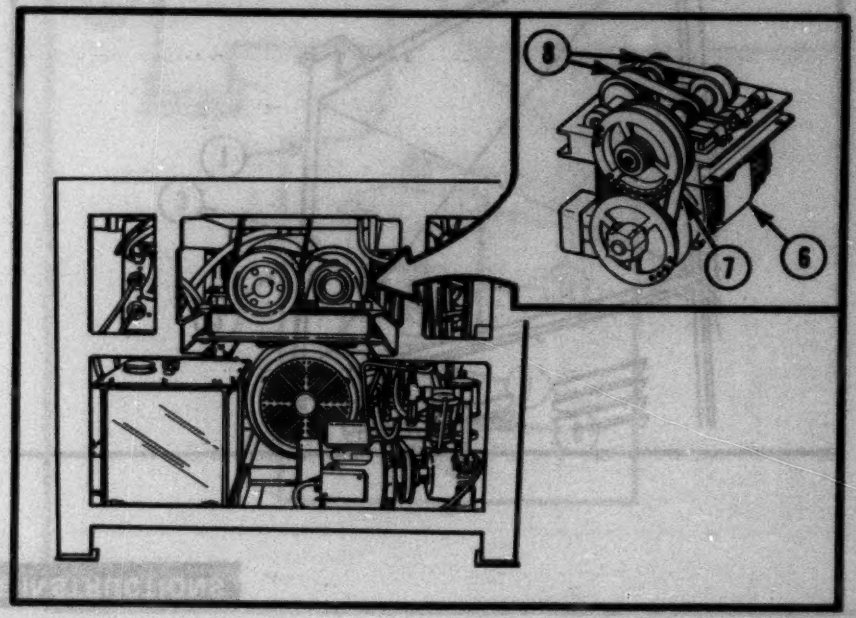


3 DRIVE UNIT ASSEMBLY (6).

a. Check varidrive belt (7) and both timing belts (8) for looseness and fraying. Notify general support maintenance.

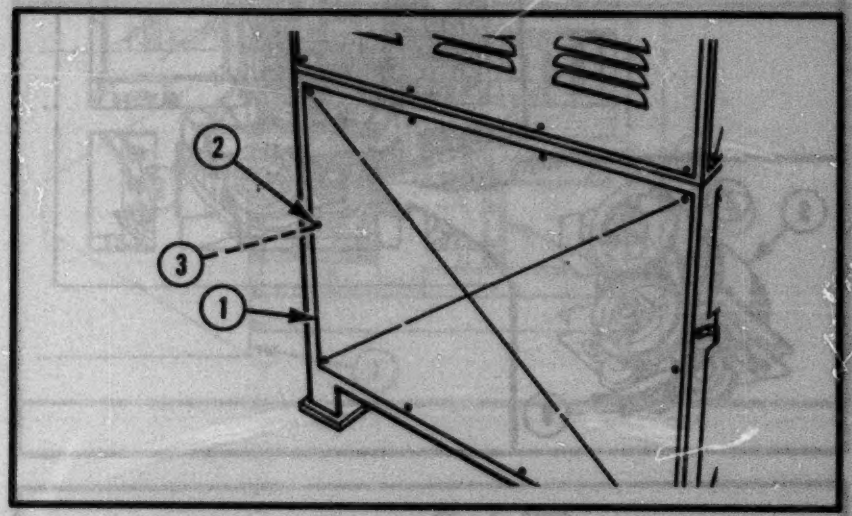
b. Check for dirt and excessive grease.

c. Clean metal surfaces with cleaning compound (item 3, app C) using rag (item 14, app C).

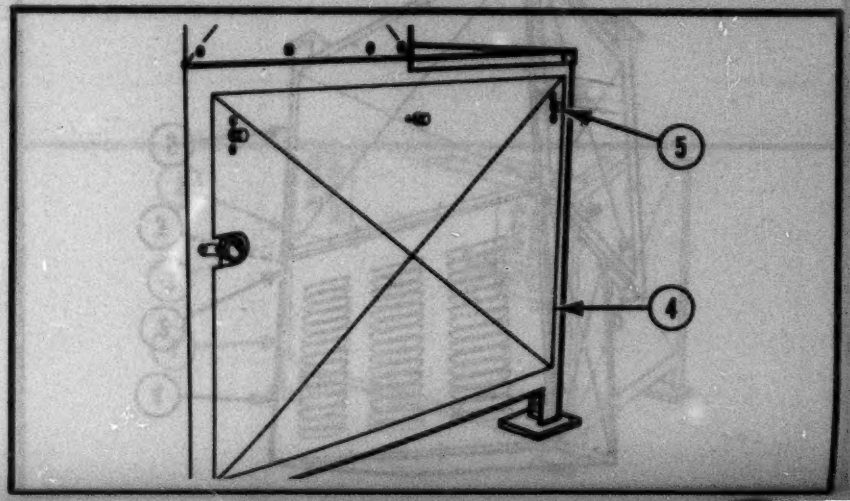


3-15. AUXILIARY MOTOR AND PUMP ASSEMBLY—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING



1 LOWER BACK PANEL (1). Remove 10 screws (2), 10 washers (3), and remove.



2 LH PANEL ASSEMBLY (4). Remove by turning 3 pawl fasteners (5) counterclockwise until they release.

3 VACUUM PUMP (6).

a. Loosen connector (7) using 3/4-in. open end wrench.

b. Remove exhaust trap (8).

c. Remove bolt assembly (9) using 5/8-in. open end wrench.

d. Remove cap (10) and empty oil into an available minimum-size 1-qt (0.95-l) container.

e. Check jar (11) for damage; notify general support maintenance.

f. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

NOTE

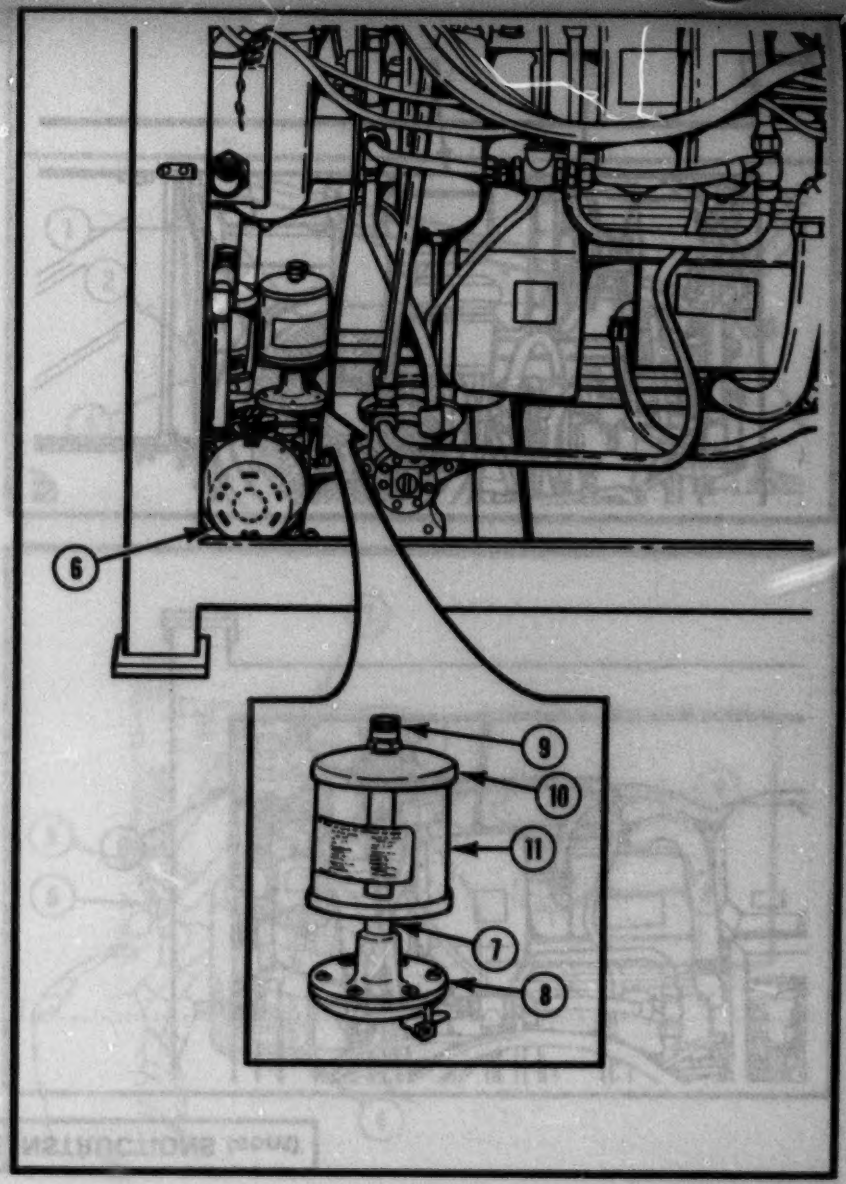
Oil could vary from that stated below if test in step h. has previously indicated that a different weight should be used.

g. Refill jar with oil (item 9, app C).

NOTE

Step h. will be necessary only at initial installation or when the tester is moved to a new location.

h. Determine the correct operating oil weight for the exhaust trap by taking a reading of the temperature of the surrounding area inside the tester after 30 min. of operation. If the temperature reads 100° F (37.5° C) or above, use oil (item 10, app C); if the temperature reads below 100° F (37.5° C), use oil (item 9, app C). Use that oil at all times unless surroundings change, then repeat test.



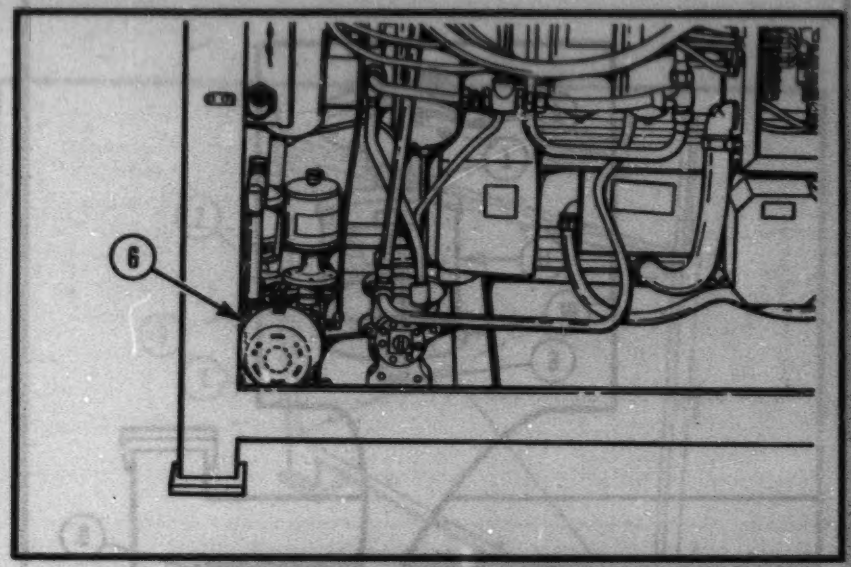
3-15. AUXILIARY MOTOR AND PUMP ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

3 VACUUM PUMP (6).(cont)

NOTE

Step i. will be necessary only if test in step h. has indicated the use of a different oil from that in step g.

i. Empty oil, refill jar with oil (item 10, app C).

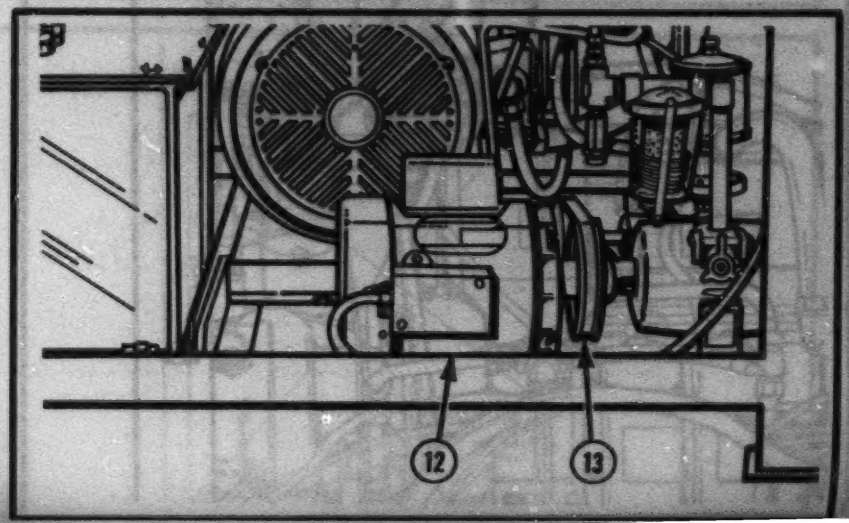


4 AUXILIARY MOTOR AND PUMP ASSEMBLY (12).

a. Check belt (13) for looseness and fraying. Notify general support maintenance.

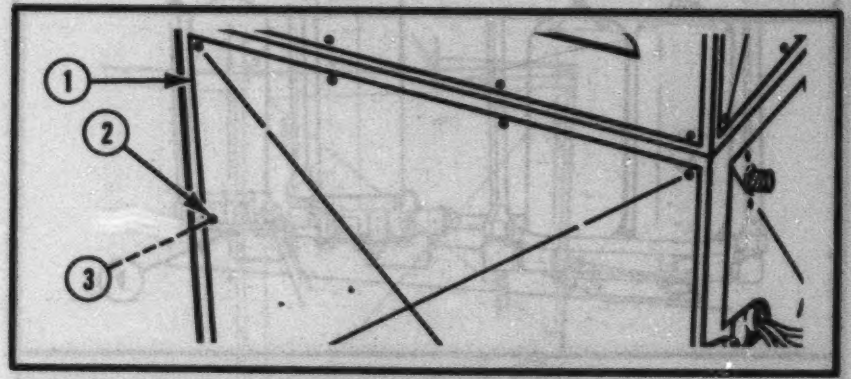
b. Check for dirt and excessive grease.

c. Clean metal surfaces with cleaning compound (item 3, app C) using rag (item 14, app C).



INSPECTION AND SERVICING

1 LOWER BACK PANEL (1). Remove 10 screws (2), 10 washers (3), and remove.



2 JAR (4).

a. Check to see if broken, cracked, or filled with foreign matter. Notify general support maintenance.

b. Remove for cleaning by loosening thumbscrew (5), then hold the jar with one hand and swing the bail (6) to one side with other hand.

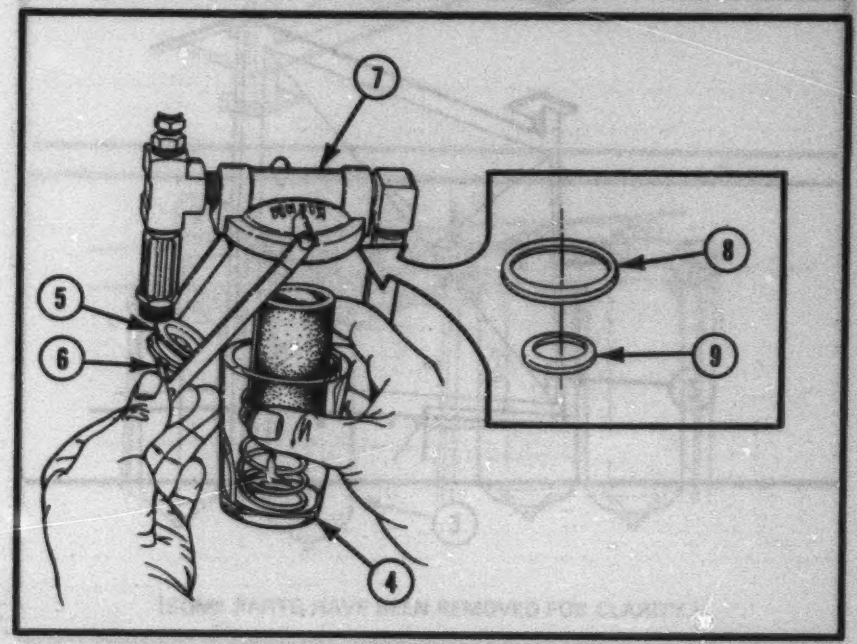
c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3 MOISTURE AND OIL TRAP (7).

a. Check jar gasket (8) and element gasket (9) for damage. Notify general support maintenance.

b. Check for dirt and excessive oil.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

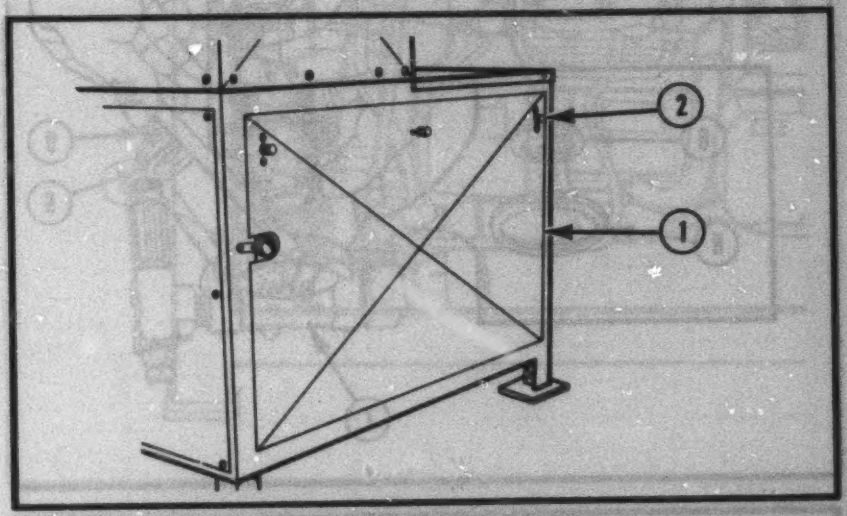


TM 9-4910-387-14-1

3-17. LUBE OIL FILTER—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

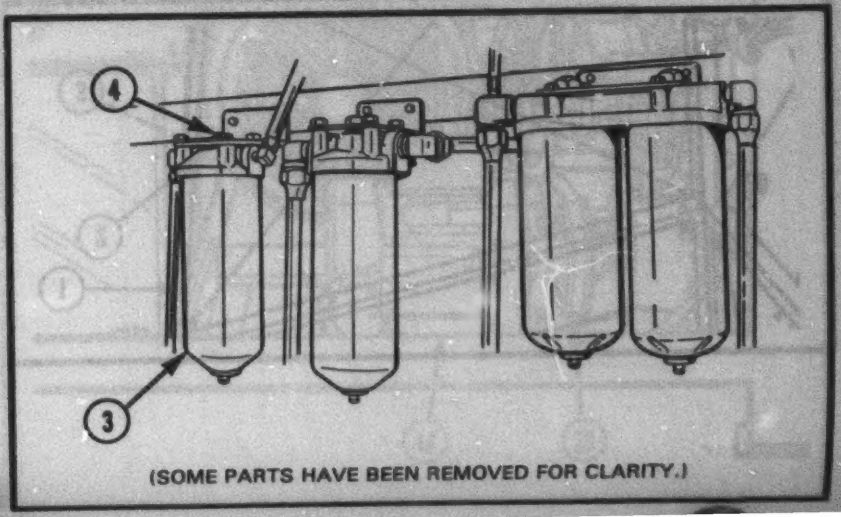
1 LH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.



2 LUBE OIL FILTER (3).

a. Check for excessive oil and leaks. Tighten bolt assembly (4). If it still leaks, notify organizational maintenance.

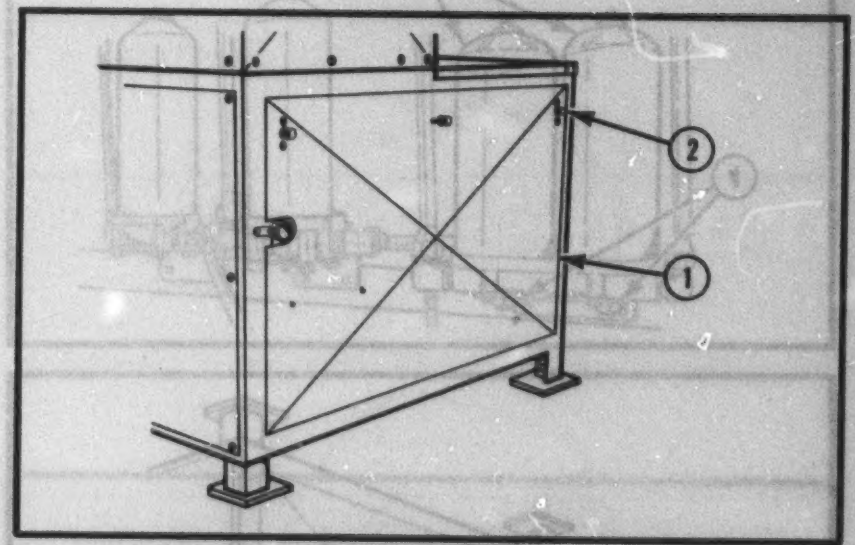
b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

INSPECTION AND SERVICING

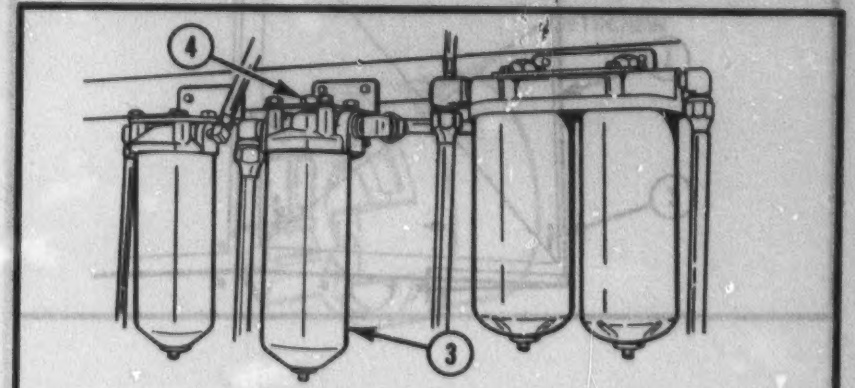
1 LH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.



2 PRIMARY FUEL FILTER (3).

a. Check for excessive oil and leaks. Tighten bolt assembly (4). If it still leaks, notify organizational maintenance.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

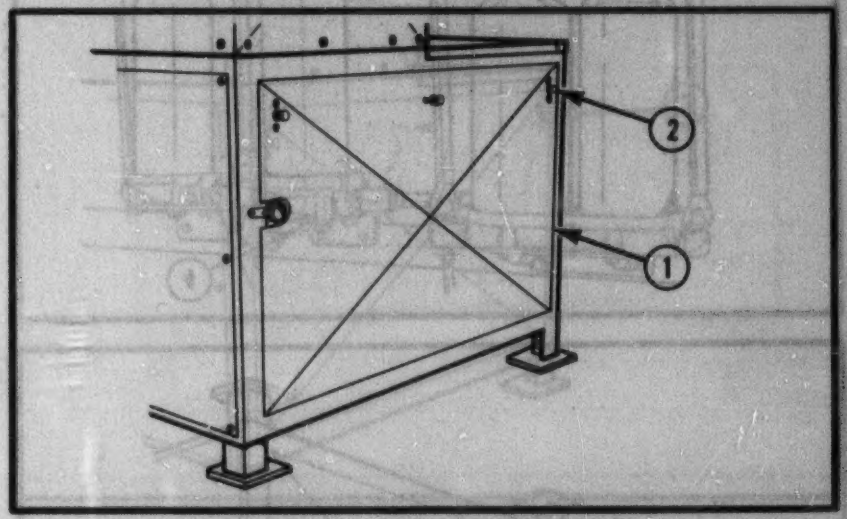


(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

3-19. SECONDARY FUEL FILTER—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

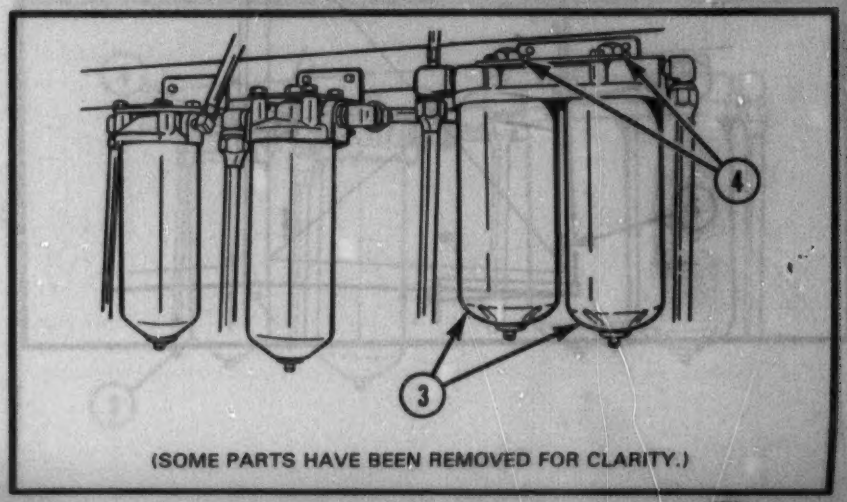
1 LH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.



2 SECONDARY FUEL FILTER (3).

a. Check for excessive oil and leaks. Tighten two capscrews (4). If it still leaks, notify organizational maintenance.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

3-20. ACCESSORIES SET—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

ACCESSORIES SET.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt or grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-21. DRIVE COUPLING—MAINTENANCE INSTRUCTIONS

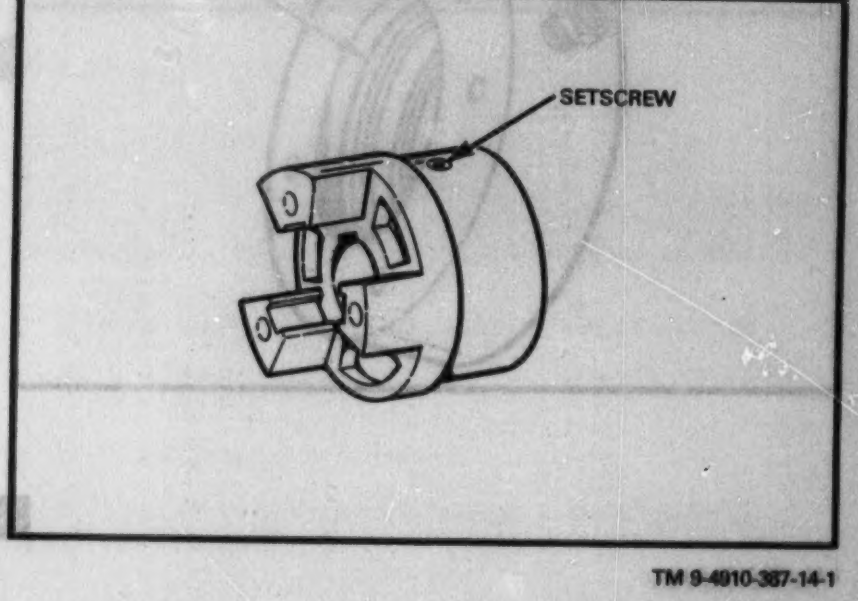
INSPECTION AND SERVICING

DRIVE COUPLING.

a. Check if setscrew is damaged or missing. Notify organizational maintenance.

b. Check for dirt or grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



3-22. ADAPTER RING ASSEMBLY—MAINTENANCE INSTRUCTIONS

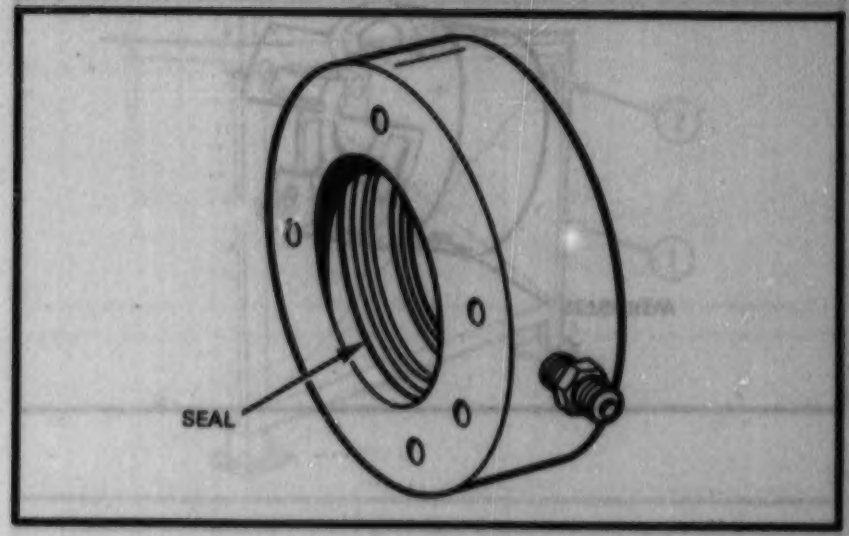
INSPECTION AND SERVICING

ADAPTER RING ASSEMBLY.

a. Check if seal is damaged or missing. Notify organizational maintenance.

b. Check for dirt or grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



3-23. DRIVEN COUPLING—MAINTENANCE INSTRUCTIONS

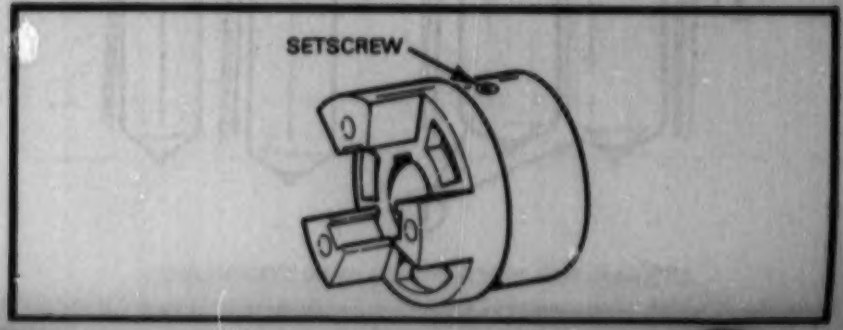
INSPECTION AND SERVICING

DRIVEN COUPLING.

a. Check if setscrew is damaged or missing. Notify organizational maintenance.

b. Check for dirt or grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



3-24. LEVER ASSEMBLY - MAINTENANCE INSTRUCTIONS

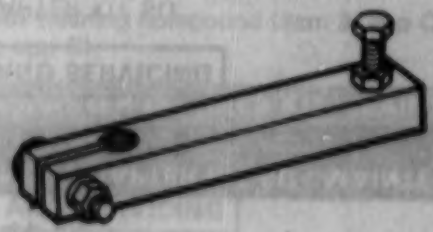
INSPECTION AND SERVICING

LEVER ASSEMBLY.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



LEVER ASSEMBLY

3-25. FUEL INJECTION TEST SET - MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

FUEL INJECTION TEST SET.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt or grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-26. CONNECTOR SET—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

CONNECTOR SET.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt or grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-27. AMERICAN BOSCH ADAPTER KIT APE-6BB—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

AMERICAN BOSCH ADAPTER KIT APE-6BB.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-28. AMERICAN BOSCH ADAPTER KIT PSB-6A AND PSB-6—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

AMERICAN BOSCH ADAPTER KIT PSB-6A AND PSB-6.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-29. AMERICAN BOSCH ADAPTER KIT PSB-12BT—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

AMERICAN BOSCH ADAPTER KIT PSB-12BT.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-30. SIMMONDS ADAPTER KIT SU—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

SIMMONDS ADAPTER KIT SU.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-31. INTERNATIONAL HARVESTER ADAPTER KIT 3200—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

INTERNATIONAL HARVESTER ADAPTER KIT 3200.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-32. AMERICAN BOSCH ADAPTER KIT PSJ-6A—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

AMERICAN BOSCH ADAPTER KIT PSJ-6A.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-33. CATERPILLAR ADAPTER KIT—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

CATERPILLAR ADAPTER KIT.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-34. ROOSA MASTER ADAPTER KIT—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

ROOSA MASTER ADAPTER KIT.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-35. CUMMINS ADAPTER KIT—MAINTENANCE INSTRUCTIONS

INSPECTION AND SERVICING

CUMMINS ADAPTER KIT.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt and grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).

3-36. AUXILIARY PANEL ASSEMBLY—MAINTENANCE INSTRUCTIONS

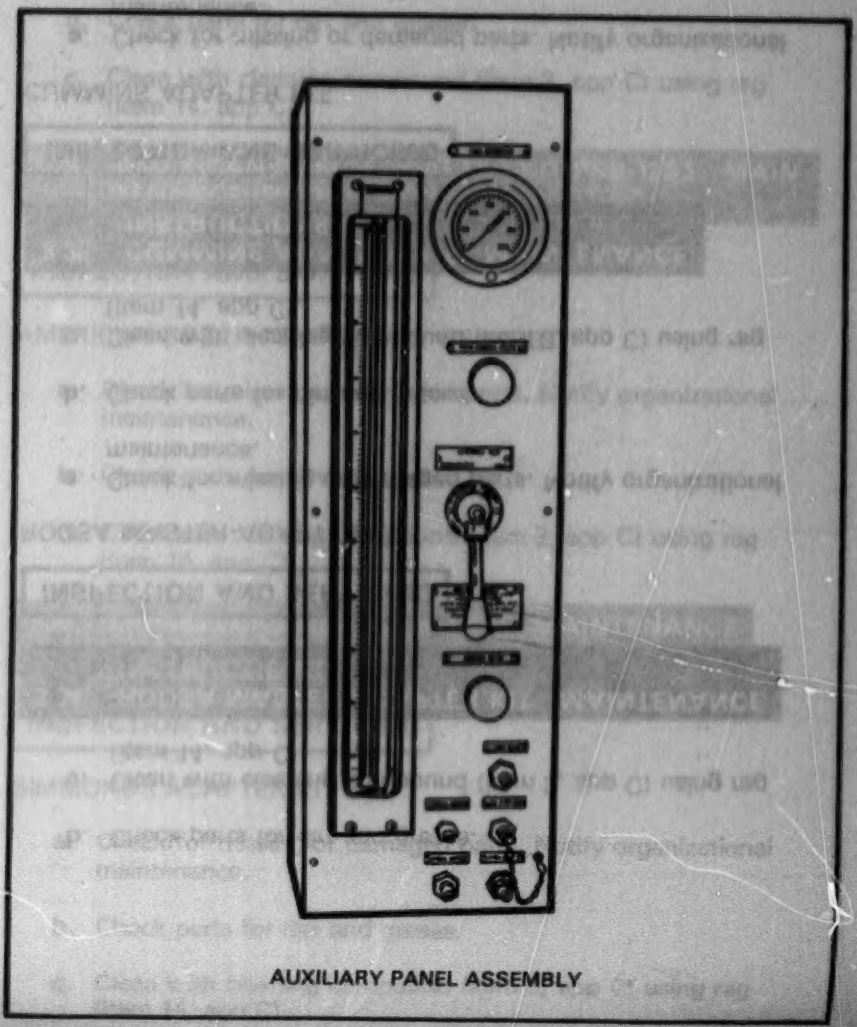
INSPECTION AND SERVICING

AUXILIARY PANEL ASSEMBLY.

a. Check for missing or damaged parts. Notify organizational maintenance.

b. Check parts for dirt or grease.

c. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



AUXILIARY PANEL ASSEMBLY

CHAPTER 4
ORGANIZATIONAL MAINTENANCE

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Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No support equipment, TMDE, or special tools are required for the tester.

4-3. REPAIR PARTS

Repair parts are listed and illustrated in TM 9-4910-387-24P.

Section II. SERVICE UPON RECEIPT

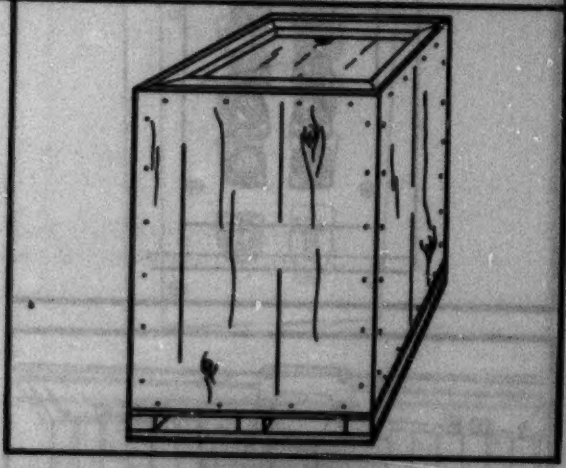
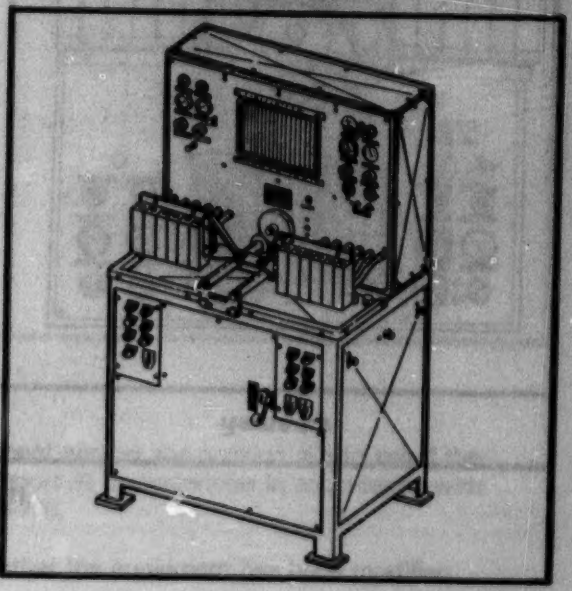
4-4. SCOPE

This section contains instructions for services to be performed by the using organization upon the receipt of a new or overhauled tester. These services include unpacking, deprocessing, and checking the tester and equipment.

4-5. SERVICE UPON RECEIPT OF MATERIEL

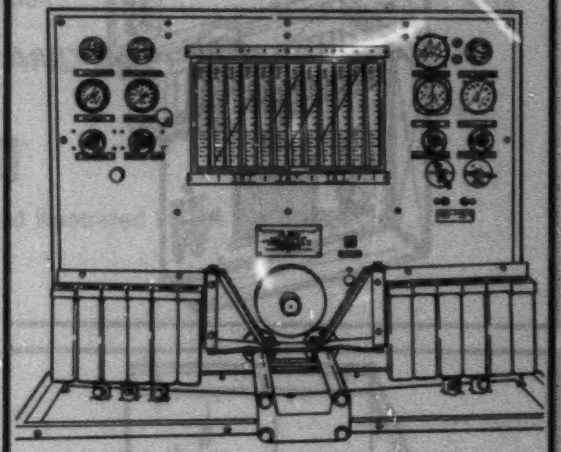
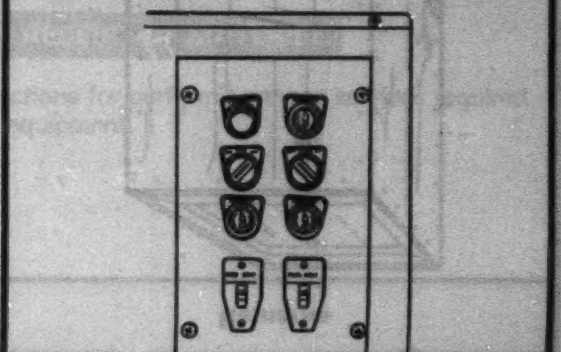
Table 4-1 contains instructions for performing those services required upon the receipt of this equipment.

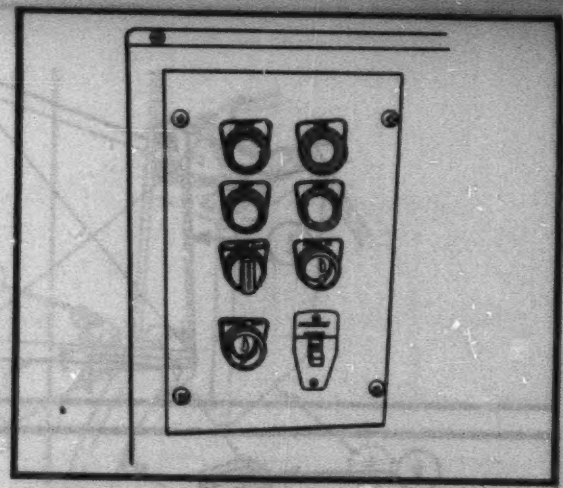
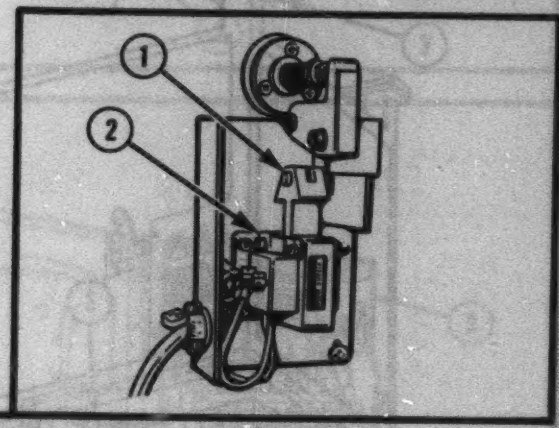
Table 4-1. SERVICE UPON RECEIPT—TESTER

Location	Item	Action	Remarks
1. TESTER	a. Tester	**NOTE** The tester is mounted on a skid and carefully prepared for shipment. Do not remove it from skid until the following procedures have been observed. (1) Remove sides and top of crate, and remove the paper covering and the box containing the accessories. (2) Check the packing slip to see that all items are present. (3) Check that the frame and panels are not bent or distorted. (4) Check all piping and tubing for damage. (5) Check to see if valves and controls operate freely. (6) Check that all pumps, motors, and all other major pieces of equipment are secured. (7) Using rag (item 14, app C) and cleaning compound (item 3, app C), thoroughly clean all parts that are coated with a rust-preventive compound or other preservative.	 

4-5. SERVICE UPON RECEIPT OF MATERIEL (cont)

Table 4-1. SERVICE UPON RECEIPT—TESTER (cont)

Location	Item	Action	Remarks
1. TESTER (cont)	a. Tester (cont)	(8) Check lubrication. Lubricate if necessary according to lube instructions (p 2-10).	
	b. Instrument Panel Assembly	Check controls, gages, and burettes for damage.	
	c. RH Control Equipment Assembly	Check controls, lenses, and lamps for damage.	

	d. LH Control Equipment Assembly	Check controls, lenses, and lamps for damage.	
2. GRADUATE RACK ASSEMBLY	Solenoid Assembly	Check that the iron core (1) is inside the solenoid (2).	

4-6. CHECKING UNPACKED EQUIPMENT

The following actions will be taken as soon as possible upon receipt of the equipment:

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DF Form 364, Report of Discrepancy (ROD).

b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in TM 38-750.

c. Check to see whether the equipment has been modified.

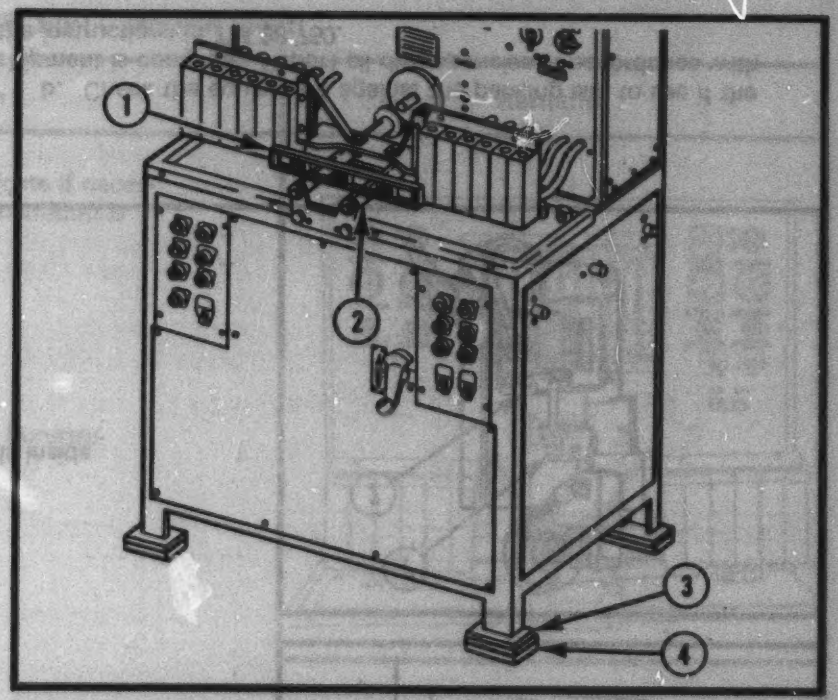
4-7 INSTALLATION INSTRUCTIONS

a. General. Recommended location for installation of the tester is a protected area that is well lighted, dust free, sound absorbing, and climate controlled. Recommended room temperature is 72°F (22°C). The space which the tester occupies must be large enough so that all panels may be removed for periodic inspection and maintenance of the tester.

b. Leveling the Tester.

(1) Place a level (1) across and then parallel to the mounting rails (2) and level tester by placing shims (3) under the legs of the tester as needed.

(2) Place a rubber foot pad (4) under each leg in addition to any shims required.



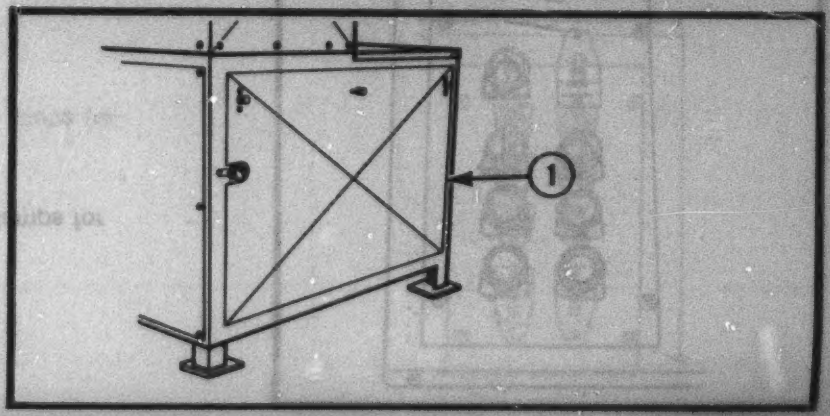
c. Power Cable Installation.

WARNING

Main power supply must have the capability to shut off power to the tester.

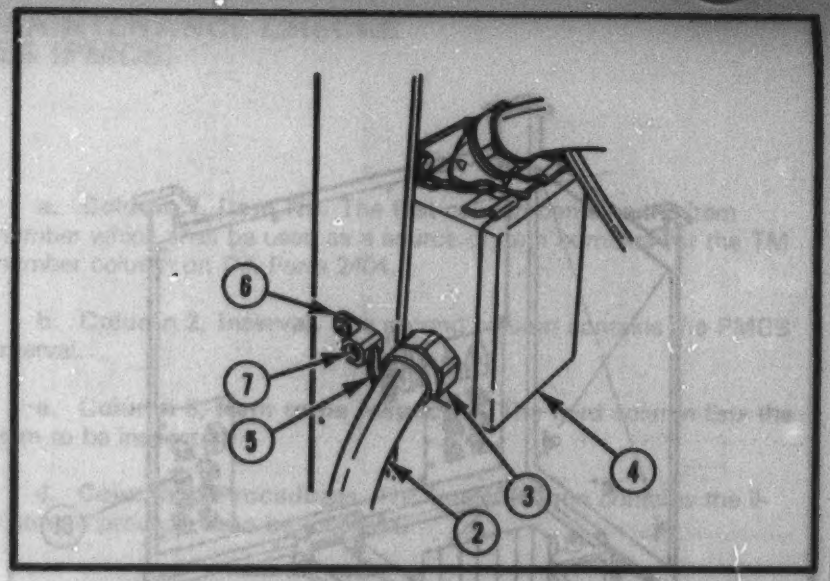
Shut off main power supply before installing power cable.

(1) Remove LH panel assembly (1).



(2) Insert one end of a three-wire no. 6 AWG cable (2) through the conduit hub (3), and connect two cable wires to two leads in the box (4) of the tester. Tighten conduit hub.

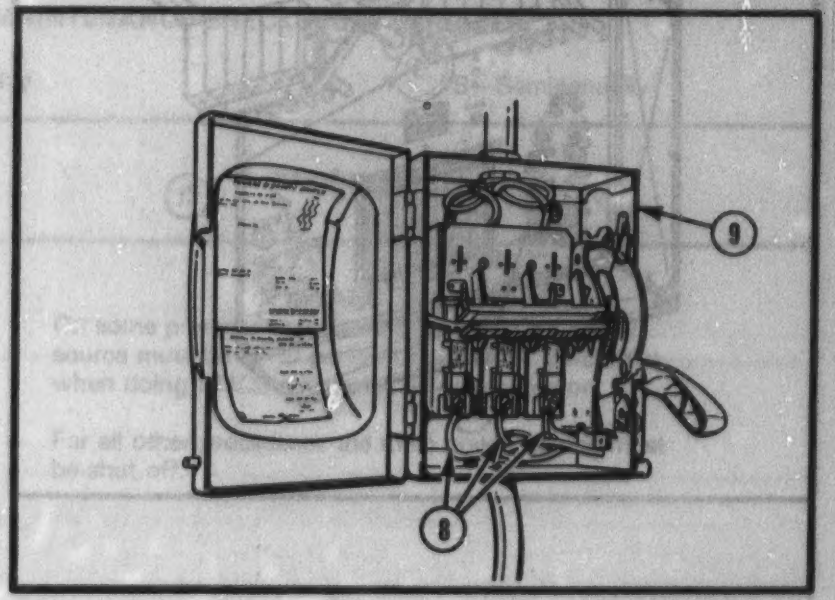
(3) Connect two ground wires (5) to connector (6) on frame of tester by inserting ends of ground wires into side of connector and tightening setscrew (7) down on the ground wires.



NOTE

Main power supply illustrated is the preferred method for providing power to tester.

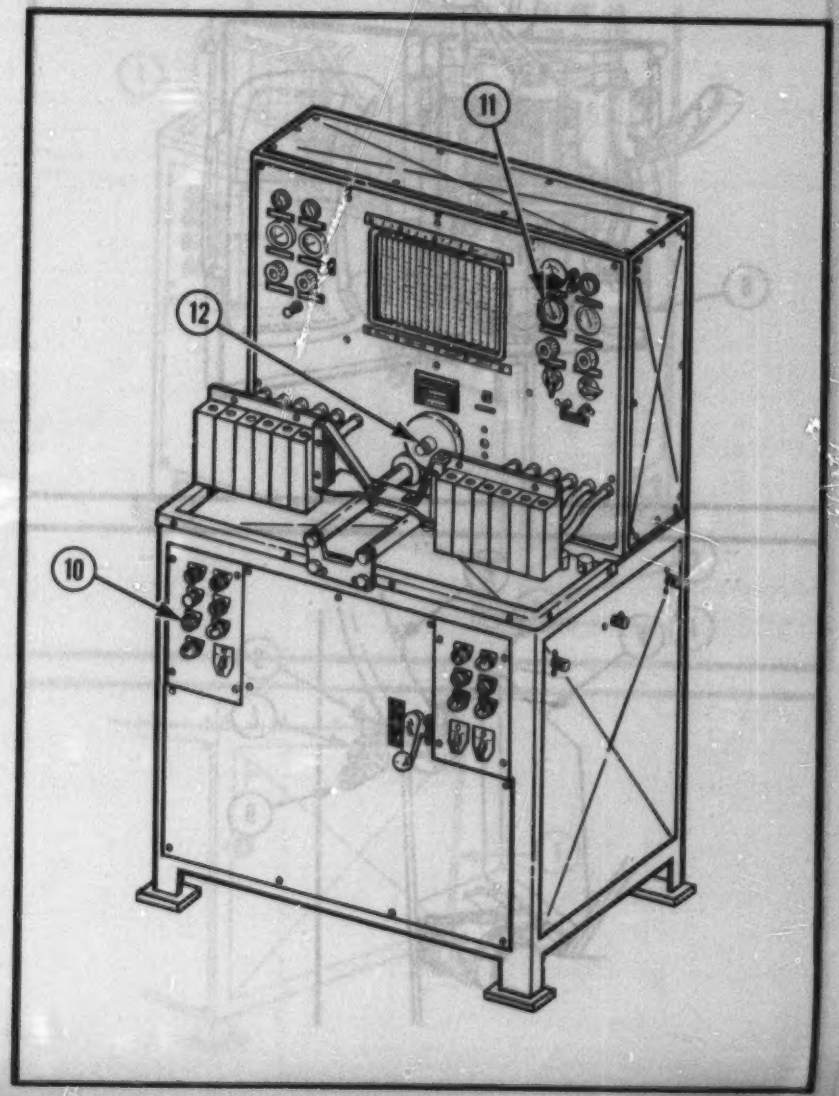
(4) Connect other end of cable wires (8) to the terminals of a 220-v, 3-phase, 60-cycle main power supply (9).



4-7. INSTALLATION INSTRUCTIONS (cont)

(a) The tester is prewired so that when the FORWARD-OFF-REVERSE switch (10) is in the FORWARD position, the TACHOMETER (11) will move clockwise, and the shouldered shaft (12) will rotate clockwise as viewed from the front of the tester.

(b) If the rotation of the TACHOMETER and shouldered shaft is incorrect, the direction may be corrected by switching any two of the three cable wires in the main power supply.



Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4-8. GENERAL

To ensure maximum operational readiness, it is necessary that the tester be systematically inspected at regular intervals so defects may be discovered and corrected before they result in serious damage or failure. Any deficiencies discovered that are beyond organizational authorization will be referred to general support maintenance for correction.

4-9. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Table 4-2 lists those preventive maintenance checks and services to be performed at their designated intervals. The table consists of four columns.

a. Column 1, Item No. The first column contains the item number which shall be used as a source of item numbers for the TM number column on DA Form 2404.

b. Column 2, Interval. The second column contains the PMCS interval.

c. Column 3, Item to be Inspected. The third column lists the item to be inspected.

d. Column 4, Procedures. The fourth column contains the illustrated procedures to be followed.

Table 4-2. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

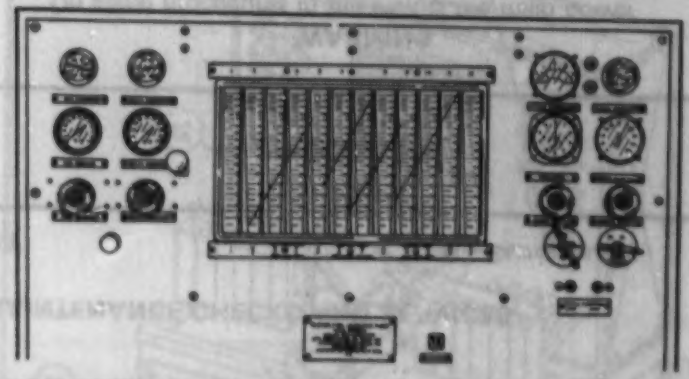
W—Weekly M—Monthly S—Semiannually

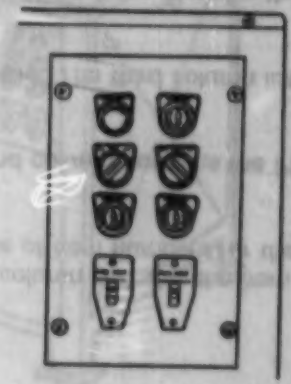
ITEM NO.	INTERVAL			ITEM(S) TO BE INSPECTED	PROCEDURES
	W	M	S		
					WARNING On some procedures in the PMCS the main power source must be on to perform inspection. Be careful when doing PMCS with main power source on. For all other procedures the main power source must be shut off.

4-9. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

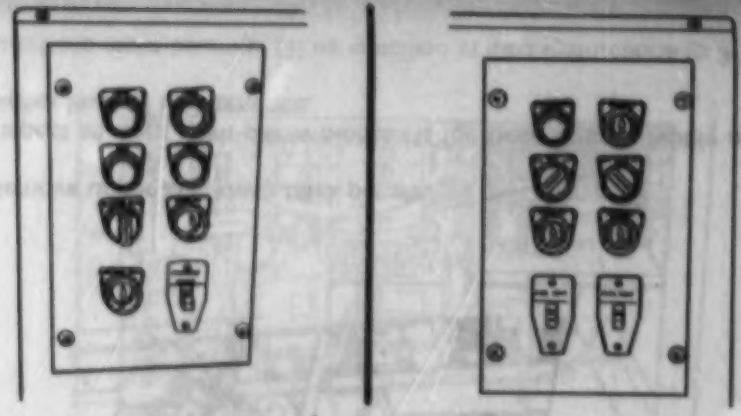
Table 4-2. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

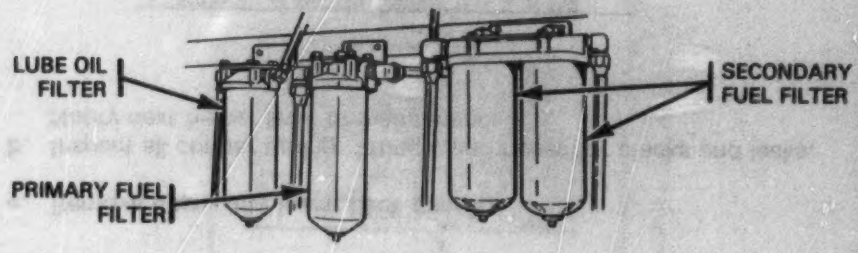
ITEM NO.	INTERVAL			ITEM(S) TO BE INSPECTED	PROCEDURES
	W	M	S		
1	•			CONTROLS AND INDICATORS	Check for proper operation. Notify next higher level of maintenance.





2	•		INDICATOR LIGHTS	a. Check for proper operation. b. Replace defective clear lamps (p 4-62). If still not indicating properly, notify next higher level of maintenance.
3		•	LUBE OIL, PRIMARY FUEL, AND SECONDARY FUEL FILTERS	a. Remove LH panel assembly. b. Inspect filters for leaks and damaged connections. Notify next higher level of maintenance. c. Repair by replacing authorized parts (p 4-76, 4-79, and 4-82).

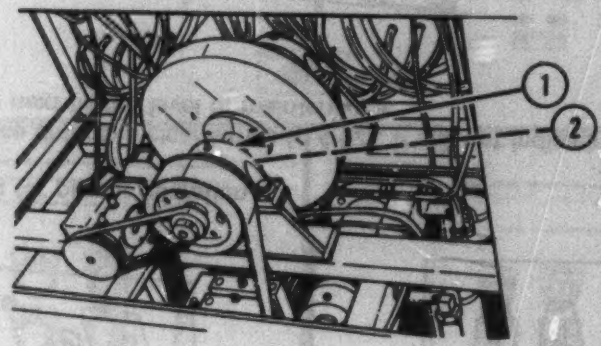




(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

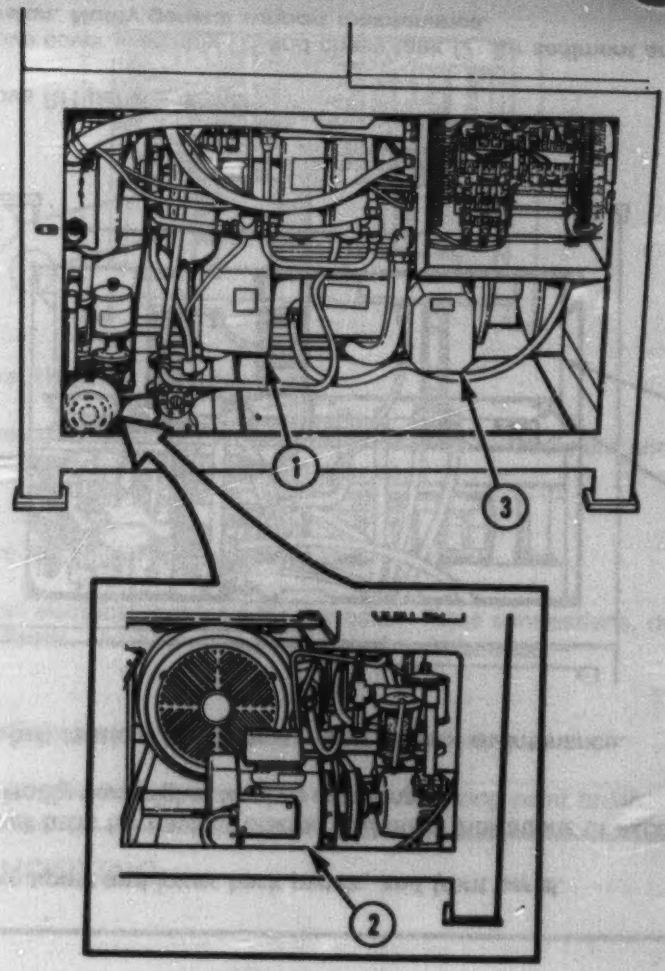
4-9. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

Table 4-2. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

ITEM NO.	INTERVAL			ITEM(S) TO BE INSPECTED	PROCEDURES
	W	M	S		
4		•		FUEL, VACUUM, AND LUBE OIL SYSTEMS	a. Remove upper and lower back panels. b. Inspect all copper tubing, fittings, and hoses for cracks and leaks. Notify next higher level of maintenance. 
5		•		SHAFT PILLOW BLOCKS AND BEARINGS	a. Remove upper and lower back panels. b. Inspect all eight shaft pillow blocks (1) for loose screws. Notify next higher level of maintenance. c. Lubricate eight bearings (2) as specified in lube instructions (p 3-7).

6

MAIN DRIVE MOTOR, AUXILIARY MOTOR, AND REMOTE CONTROL MOTOR



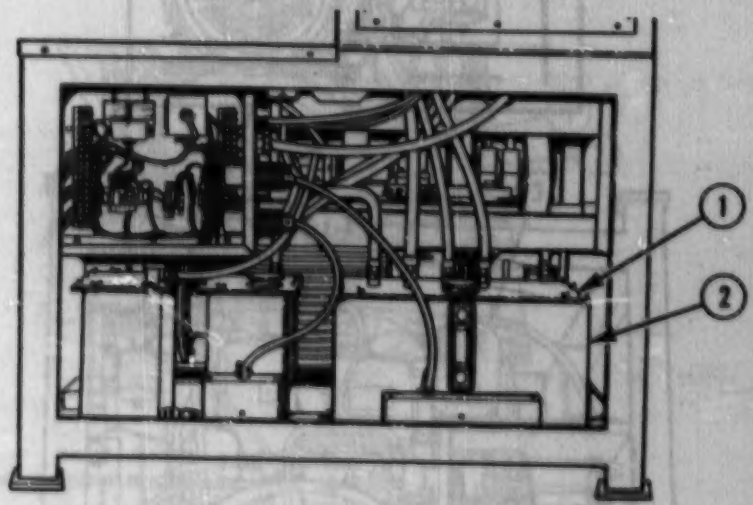
a. Remove LH panel assembly.

b. Check main drive motor (1), auxiliary motor (2), and remote control motor (3) for unusual noise, excessive heating, unusual odor, and loose mounting screws. Notify next higher level of maintenance.

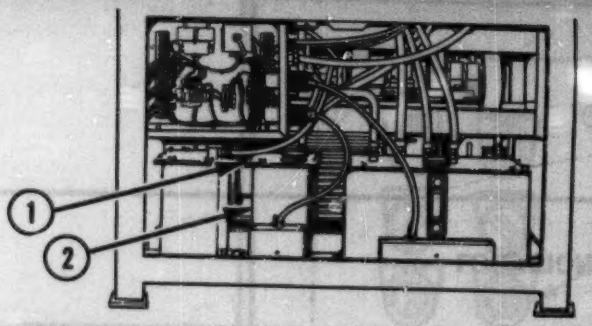
4-9. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

Table 4-2. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (cont)

ITEM NO.	INTERVAL			ITEM(S) TO BE INSPECTED	PROCEDURES
	W	M	S		
7		•		BELTS	a. Remove upper and lower back panels, and front panel. b. Check all belts for fraying, cracks, and other indications of excessive wear. Notify next higher level of maintenance. c. Check belt tension. Notify next higher level of maintenance.
8			•	FUEL TANK ASSEMBLY	a. Remove RH panel assembly. b. Remove cover assembly (1) and check tank (2) for sediment and corrosion. Notify general support maintenance.



9			•	LUBE OIL TANK ASSEMBLY	a. Remove RH panel assembly. b. Remove cover assembly (1) and check tank (2) for sediment and corrosion. Notify general support maintenance.
10			•	RH AND LH CONTROL EQUIPMENT ASSEMBLIES	a. Remove RH and LH panel assemblies. b. Check all electrical terminals for corrosion, loose connections, or damaged threads. Notify next higher level of maintenance.
11			•	PAINTED SURFACES	a. Check all painted surfaces for rust and corrosion. b. Paint if needed with enamel (item 6, app C), using paint brush.



Section IV. TROUBLESHOOTING

4-10. TROUBLESHOOTING INFORMATION

a. The symptom index (p 4-16) can be used as a quick guide to troubleshooting. Common malfunctions are listed in alphabetical order with a page number reference to the troubleshooting table where a test or inspection and corrective action are provided.

b. Table 4-3 lists the malfunction, the test or inspection indicating the malfunction, and the corrective action needed. There are illustrations to show location of parts. If the malfunction still exists after all listed corrective actions have been performed, notify next higher level of maintenance.

4-10. TROUBLESHOOTING INFORMATION (cont)

SYMPTOM INDEX

	Troubleshooting Procedure (Page)
LH CONTROL EQUIPMENT ASSEMBLY	
MANIFOLD HEAT light does not light	4-21
POWER ON light does not light	4-20
RH CONTROL EQUIPMENT ASSEMBLY	
COUNTING light does not light up when START button is pressed	4-19
FUEL HEAT light does not light	4-17
LUBE HEAT light does not light	4-18
TRAY AND DISCHARGE BLOCKS ASSEMBLY	
FUEL PRESSURE gage does not indicate/fuel is not being delivered from fuel pressure inlet	4-22
LUBE OIL PRESSURE gage does not indicate/lube oil is not being delivered from lube oil pressure inlet	4-23

Table 4-3. TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
WARNING Shut off main power source when performing maintenance.	

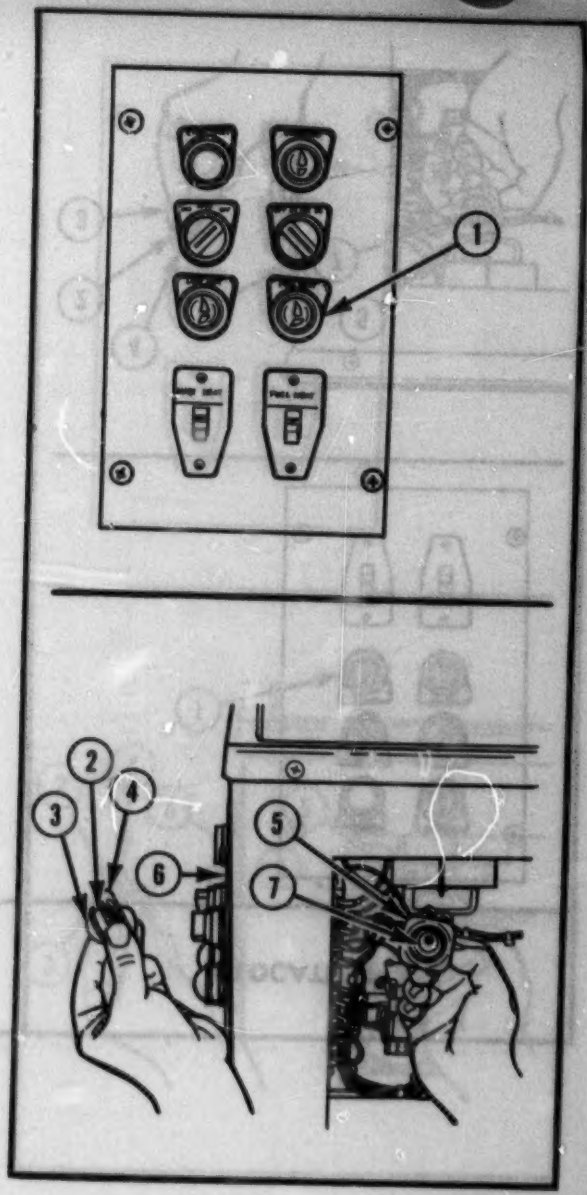
RH CONTROL EQUIPMENT ASSEMBLY

1. FUEL HEAT LIGHT (1) DOES NOT LIGHT.

Remove RH panel assembly. Turn lens cap (2) counterclockwise and remove clear lens (3), lens cap (2), and legend plate (4). Pull out indicator light (5) through rear of RH control panel (6). Check lamp (7) to see if burned out by installing in a known operational indicator receptacle.

a. Replace lamp (TM 9-4910-387-24P) as required.

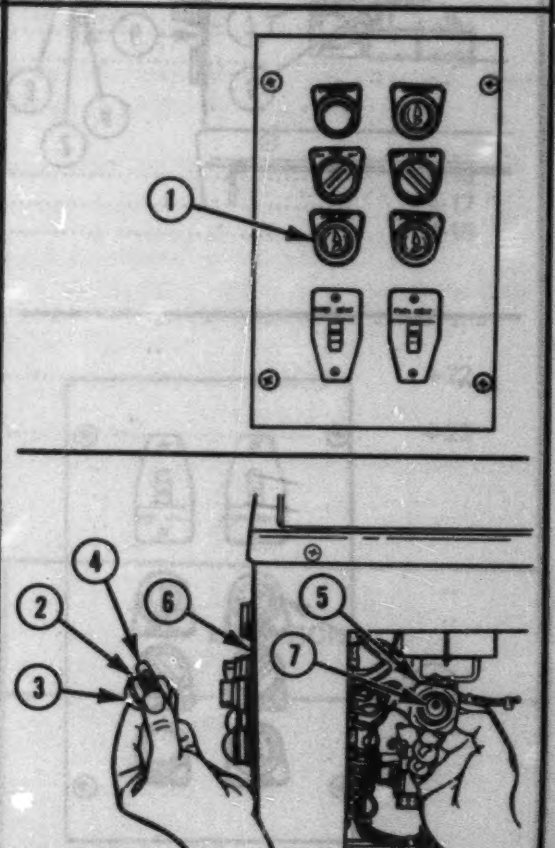
b. If the above procedure does not correct fault, notify next higher level of maintenance.



TM 9-4810-387-14-1

4-10. TROUBLESHOOTING INFORMATION (cont)

Table 4-3. TROUBLESHOOTING (cont)

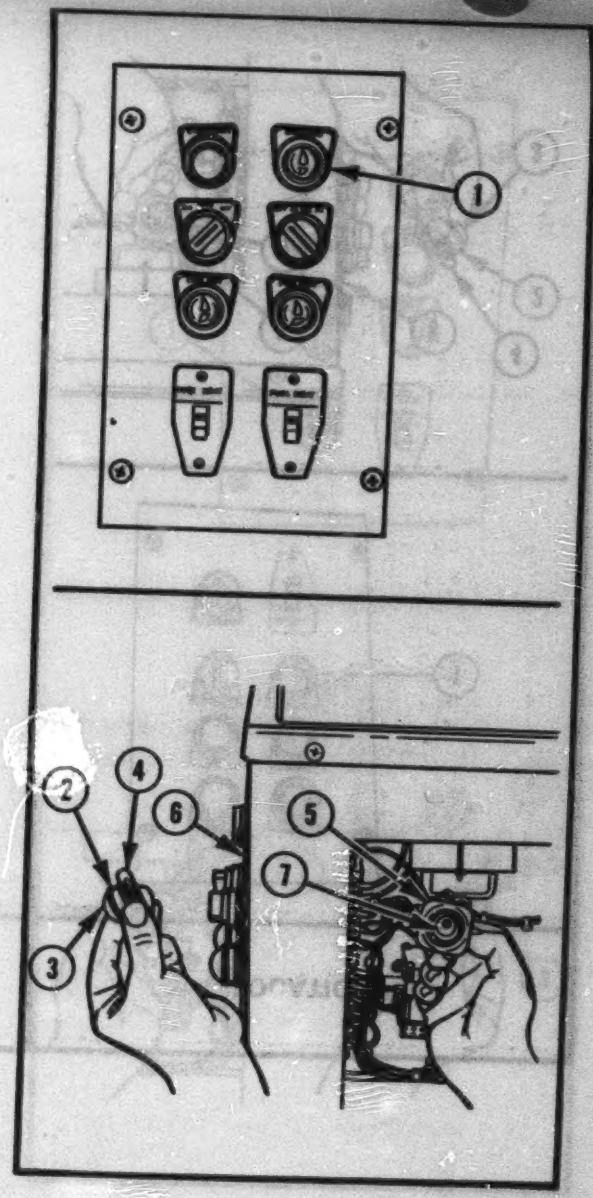
MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
RH CONTROL EQUIPMENT ASSEMBLY (cont)	
2. LUBE HEAT LIGHT (1) DOES NOT LIGHT. Remove RH panel assembly. Turn lens cap (2) counterclockwise and remove clear lens (3), lens cap (2), and legend plate (4). Pull out indicator light (5) through rear of RH control panel (6). Check lamp (7) to see if burned out by installing in a known operational indicator receptacle. a. Replace lamp (TM 9-4910-387-24P) if required. b. If the above procedure does not correct fault, notify next higher level of maintenance.	

3. COUNTING LIGHT (1) DOES NOT LIGHT UP WHEN START BUTTON IS PRESSED.

Remove RH panel assembly. Turn lens cap (2) counterclockwise and remove amber lens (3), lens cap (2), and legend plate (4). Pull out indicator light (5) through rear of RH control panel (6). Check lamp (7) to see if burned out by installing in a known operational indicator receptacle.

a. Replace lamp (TM 9-4910-387-24P) if required.

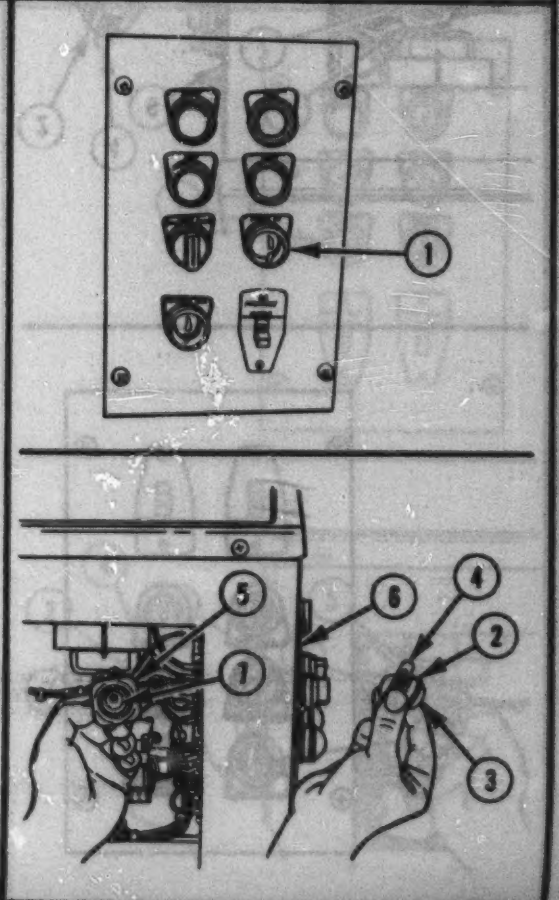
b. If the above procedure does not correct fault, notify next higher level of maintenance.



TM 9-4910-387-14-1

4-10. TROUBLESHOOTING INFORMATION (cont)

Table 4-3. TROUBLESHOOTING (cont)

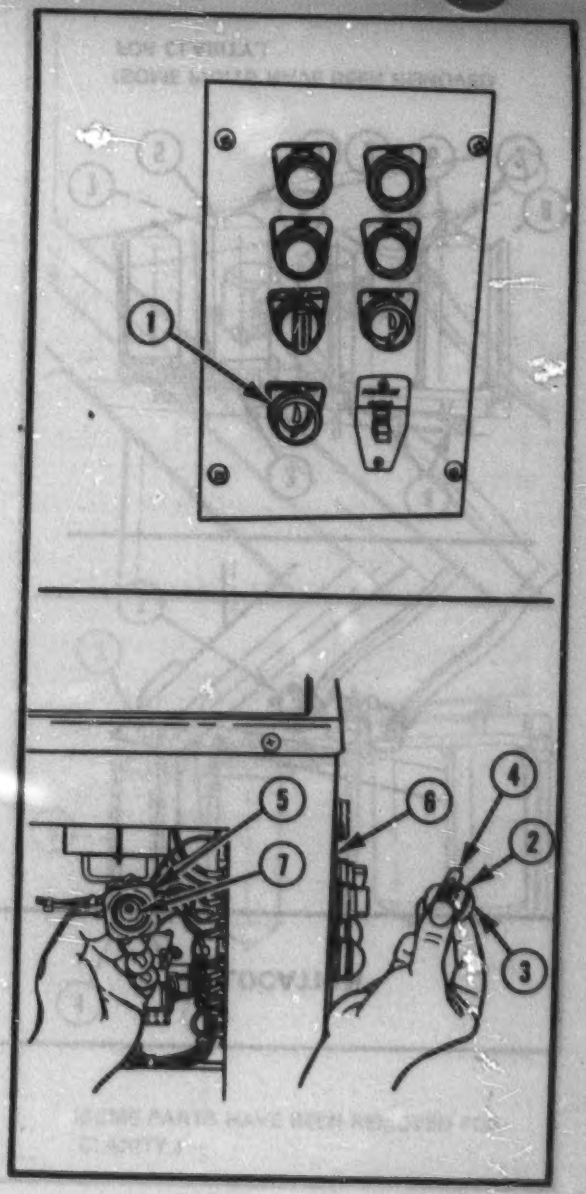
MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
LH CONTROL EQUIPMENT ASSEMBLY	
4. POWER ON LIGHT (1) DOES NOT LIGHT. Remove LH panel assembly. Turn lens cap (2) counterclockwise and remove amber lens (3), lens cap (2), and legend plate (4). Pull out indicator light (5) through rear of LH control panel (6). Check lamp (7) to see if burned out by installing in a known operational indicator recepticle. **a.** Replace lamp (TM 9-4910-387-24P) as required. **b.** If the above procedure does not correct fault, notify next higher level of maintenance.	

5. MANIFOLD HEAT LIGHT (1) DOES NOT LIGHT.

Remove LH panel assembly. Turn lens cap (2) counterclockwise and remove clear lens (3), lens cap (2), and legend plate (4). Pull out indicator light (5) through rear of LH control panel (6). Check lamp (7) to see if burned out by installing in a known operational indicator receptacle.

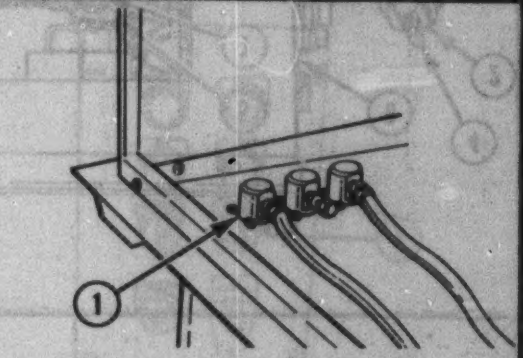
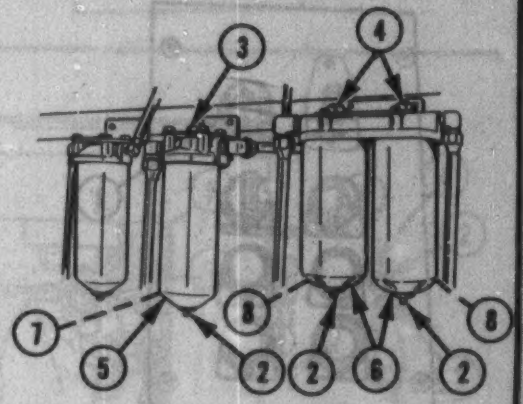
a. Replace lamp (TM 9-4910-387-24P) if required.

b. If the above procedure does not correct fault, notify next higher level of maintenance.



4-10. TROUBLESHOOTING INFORMATION (cont)

Table 4-3. TROUBLESHOOTING (cont)

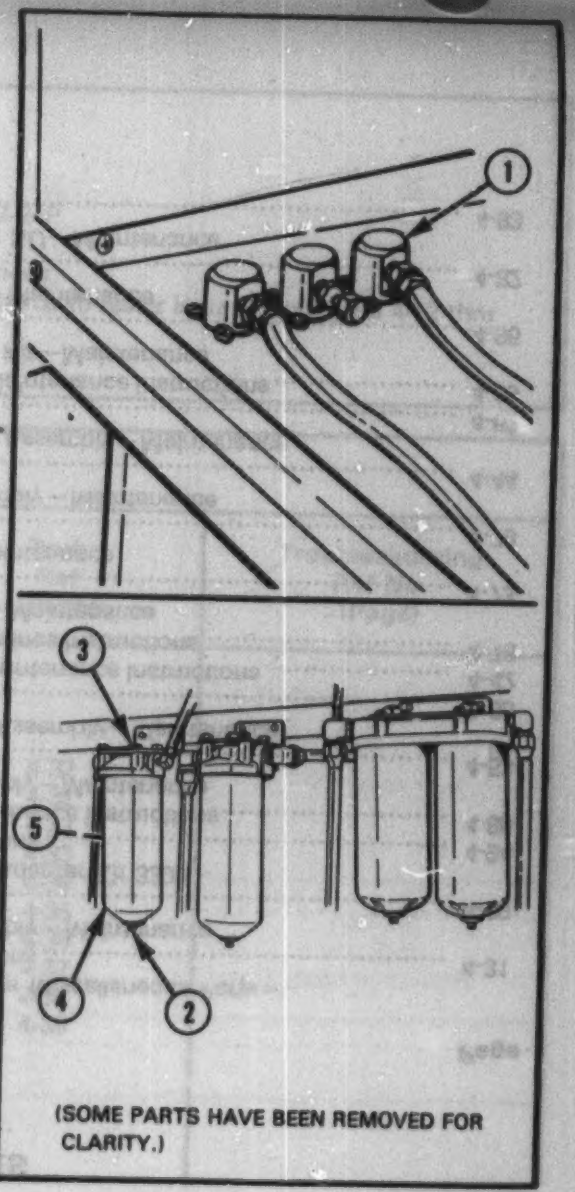
MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	LOCATION
TRAY AND DISCHARGE BLOCKS ASSEMBLY	
6. FUEL PRESSURE GAGE DOES NOT INDICATE/FUEL IS NOT BEING DELIVERED FROM FUEL PRESSURE INLET (1). **NOTE** For testers with only a single secondary fuel filter, there is no plug to remove. Drain fuel after removing secondary fuel body assembly. Remove LH panel assembly. Remove three plugs (2) and drain fuel into an available minimum-size 1-gal. (3.785-l) container. Loosen bolt assembly (3) and two capscrews (4). Remove primary fuel body assembly (5) and secondary fuel body assemblies (6). Check for dirty or clogged filter elements (7 and 8). a. Clean or replace primary fuel filter element (TM 9-4910-387-24P) as required. b. Replace secondary fuel filter elements (TM 9-4910-387-24P) as required. c. If the above procedure does not correct fault, notify next higher level of maintenance.	  (SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

7. LUBE OIL PRESSURE GAGE DOES NOT INDICATE/LUBE OIL IS NOT BEING DELIVERED FROM LUBE OIL PRESSURE INLET (1).

Remove LH panel assembly. Remove plug (2) and drain into an available minimum-size 2-qt (1.89-l) container. Loosen bolt assembly (3) and remove body assembly (4). Check for dirty or clogged filter element (5).

a. Replace filter element (TM 9-4910-387-24P) as required.

b. If the above procedure does not correct fault, notify next higher level of maintenance.



(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

Section V. MAINTENANCE PROCEDURES

SECTION INDEX

	Page
Accessories Set—Maintenance Instructions	4-86
Accumulator Assembly—Maintenance Instructions	4-50
Accumulator Assembly—Maintenance Instructions	4-59
Adapter Ring Assembly—Maintenance Instructions	4-87
American Bosch Adapter Kit APE-6BB—Maintenance Instructions	4-92
American Bosch Adapter Kit PSB-12BT—Maintenance Instructions	4-93
American Bosch Adapter Kit PSB-6A and PSB-6—Maintenance Instructions	4-92
American Bosch Adapter Kit PSJ-6A—Maintenance Instructions	4-94
Auxiliary Panel Assembly—Maintenance Instructions	4-96
Caterpillar Adapter Kit—Maintenance Instructions	4-95
Connector Set—Maintenance Instructions	4-91
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Instrument Panel Assembly—Maintenance Instructions	4-60
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LH Control Equipment Assembly—Maintenance Instructions	4-66
LH Panel Assembly—Maintenance Instructions	4-42
Lube Oil Filter—Maintenance Instructions	4-76
Moisture and Oil Trap—Maintenance Instructions	4-73
Primary Fuel Filter—Maintenance Instructions	4-79
RH Accumulator Assembly—Maintenance Instructions	4-44
RH Control Equipment Assembly—Maintenance Instructions	4-62
RH Panel Assembly—Maintenance Instructions	4-39
Roosa Master Adapter Kit—Maintenance Instructions	4-95
Secondary Fuel Filter—Maintenance Instructions	4-82
Simmonds Adapter Kit SU—Maintenance Instructions	4-93

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Materials/Parts
Cleaning compound (item 3, app C)
Kerosene (item 8, app C)
Rag (item 14, app C)

References
TM 9-4910-387-24P

Equipment Conditions
Main power source to tester is turned off (para 4-12 thru 4-25)

LIST OF TASKS

Task No.	Task	Task Ref (Page)	Troubleshooting Ref No. (Page)
1	Maintain fuel injector pump tester miscellaneous parts:		
	a. Repair of top panel.	4-32	
	b. Repair of upper back panel.	4-32	
	c. Repair of lower back panel.	4-33	
	d. Repair of RH upper side panel.	4-33	
	e. Repair of LH upper side panel.	4-34	
	f. Repair of front panel.	4-35	
	g. Repair of accumulator mounting parts.	4-36	
	h. Repair of plate parts.	4-37	
	i. Repair of instrument panel parts.	4-38	
	j. Repair of foot pads.	4-39	

4-11. FUEL INJECTOR PUMP TESTER—MAINTENANCE INSTRUCTIONS (cont)

LIST OF TASKS (cont)

Task No.	Task	Task Ref (Page)	Troubleshooting Ref No. (Page)
2	Maintain RH panel assembly:		
	a. Remove.	4-40	
	b. Disassemble.	4-40	
	c. Repair.	4-41	
	d. Reassemble.	4-41	
	e. Install.	4-41	
3	Maintain LH panel assembly:		
	a. Remove.	4-42	
	b. Disassemble.	4-43	
	c. Repair.	4-43	
	d. Reassemble.	4-43	
	e. Install.	4-44	
4	Maintain RH accumulator assembly:		
	a. Remove.	4-45	
	b. Disassemble.	4-46	
	c. Repair.	4-47	
	d. Reassemble.	4-47	
	e. Install.	4-48	

5	Maintain accumulator assembly:		
	a. Remove.	4-50	
	b. Disassemble.	4-51	
	c. Inspect/service.	4-51	
	d. Repair.	4-51	
	e. Reassemble.	4-52	
	f. Install.	4-52	
6	Maintain LH accumulator assembly:		
	a. Remove.	4-53	
	b. Disassemble.	4-55	
	c. Repair.	4-55	
	d. Reassemble.	4-56	
	e. Install.	4-57	
7	Maintain accumulator assembly:		
	a. Remove.	4-59	
	b. Disassemble.	4-60	
	c. Inspect/service.	4-60	
	d. Repair.	4-60	
	e. Reassemble.	4-61	
	f. Install.	4-61	
8	Maintain RH control equipment assembly:		4-17 thru 4-19
	a. Disassemble.	4-62	
	b. Inspect/service.	4-63	
	c. Repair.	4-64	
	d. Reassemble.	4-64	
9	Maintain LH control equipment assembly:		4-20, 4-21
	a. Disassemble.	4-66	
	b. Inspect/service.	4-67	
	c. Repair.	4-67	
	d. Reassemble.	4-67	

4-11. FUEL INJECTOR PUMP TESTER—MAINTENANCE INSTRUCTIONS (cont)

LIST OF TASKS (cont)

Task No.	Task	Task Ref (Page)	Troubleshooting Ref No. (Page)
10	Maintain instrument panel assembly:		
	a. Disassemble.	4-69	
	b. Inspect/service.	4-71	
	c. Repair.	4-71	
	d. Reassemble.	4-72	
11	Maintain moisture and oil trap:		
	a. Disassemble.	4-74	
	b. Repair.	4-74	
	c. Reassemble.	4-75	
12	Maintain lube oil filter:		4-23
	a. Disassemble.	4-76	
	b. Repair.	4-77	
	c. Reassemble.	4-77	
13	Maintain primary fuel filter:		4-22
	a. Disassemble.	4-79	
	b. Repair.	4-81	
	c. Reassemble.	4-81	
14	Maintain secondary fuel filter:		4-22
	a. Disassemble.	4-83	
	b. Repair.	4-84	

15	Maintain accessories set:	
	Repair.	4-86
16	Maintain drive coupling:	
	a. Disassemble.	4-87
	b. Repair.	4-87
	c. Reassemble.	4-87
17	Maintain adapter ring assembly:	
	a. Disassemble.	4-88
	b. Repair.	4-88
	c. Reassemble.	4-88
18	Maintain driven coupling:	
	a. Disassemble.	4-89
	b. Repair.	4-89
	c. Reassemble.	4-89
19	Maintain lever assembly:	
	a. Disassemble.	4-90
	b. Repair.	4-90
	c. Reassemble.	4-90
20	Maintain fuel injection test set:	
	Repair.	4-91
21	Maintain connector set:	
	Repair.	4-91
22	Maintain American Bosch Adapter Kit APE-6BB:	
	Repair.	4-92

4-11. FUEL INJECTOR PUMP TESTER—MAINTENANCE INSTRUCTIONS (cont)

LIST OF TASKS (cont)

Task No.	Task	Task Ref (Page)	Troubleshooting Ref No. (Page)
23	Maintain American Bosch Adapter Kit PSB-6A and PSB-6:		
	Repair.	4-92	
24	Maintain American Bosch Adapter Kit PSB-12BT:		
	Repair.	4-93	
25	Maintain Simmonds Adapter Kit SU:		
	Repair.	4-93	
26	Maintain International Harvester Adapter Kit 3200:		
	Repair.	4-94	
27	Maintain American Bosch Adapter Kit PSJ-6A:		
	Repair.	4-94	
28	Maintain Caterpillar Adapter Kit:		
	Repair.	4-95	
29	Maintain Roosa Master Adapter Kit:		
	Repair.	4-95	

30	Maintain Cummins Adapter Kit: Repair.	4-96	
31	Maintain auxiliary panel assembly: a. Remove. b. Disassemble. c. Repair. d. Reassemble. e. Install.	4-97 4-97 4-99 4-99 4-101	

4-12. FUEL INJECTOR PUMP TESTER MISCELLANEOUS PARTS – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Repair of top panel
b. Repair of upper back panel
c. Repair of lower back panel
d. Repair of RH upper side panel
e. Repair of LH upper side panel
f. Repair of front panel
g. Repair of accumulator mounting parts
h. Repair of plate parts
i. Repair of instrument panel parts
j. Repair of foot pads

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

Equipment Conditions
Main power source to tester is turned off

4-12. FUEL INJECTOR PUMP TESTER MISCELLANEOUS PARTS—MAINTENANCE INSTRUCTIONS (cont)

REPAIR OF TOP PANEL

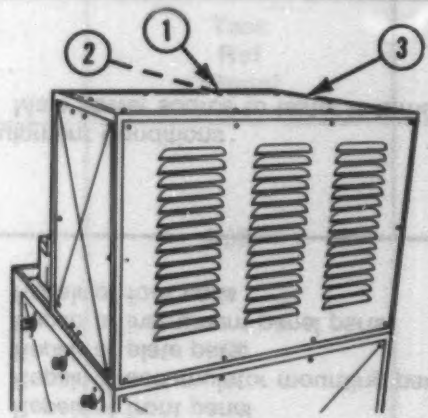
1 TEN SCREWS (1) AND TEN WASHERS (2). Remove.

2 TOP PANEL (3). Remove.

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

3 TOP PANEL (3). Position on tester.

4 TEN WASHERS (2) AND TEN SCREWS (1). Install.



REPAIR OF UPPER BACK PANEL

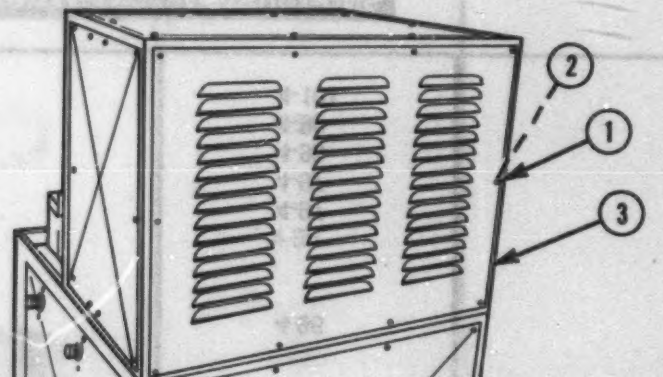
1 TEN SCREWS (1) AND TEN WASHERS (2). Remove.

2 UPPER BACK PANEL (3). Remove.

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

3 UPPER BACK PANEL (3). Position on tester.

4 TEN WASHERS (2) AND TEN



SCREWS (1). Install.

REPAIR OF LOWER BACK PANEL

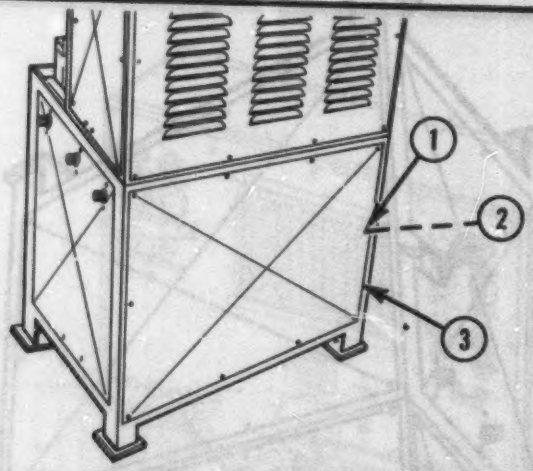
1 TEN SCREWS (1) AND TEN WASHERS (2). Remove.

2 LOWER BACK PANEL (3). Remove.

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

3 LOWER BACK PANEL (3). Position on tester.

4 TEN WASHERS (2) AND TEN SCREWS (1). Install.



REPAIR OF RH UPPER SIDE PANEL

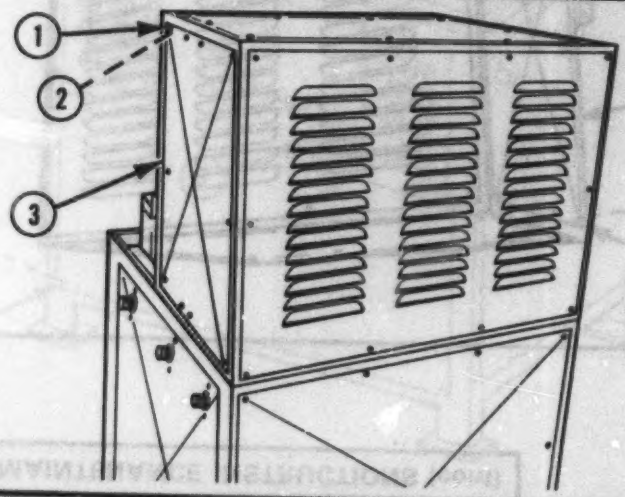
1 EIGHT SCREWS (1) AND EIGHT WASHERS (2). Remove.

2 RH UPPER SIDE PANEL (3). Remove.

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

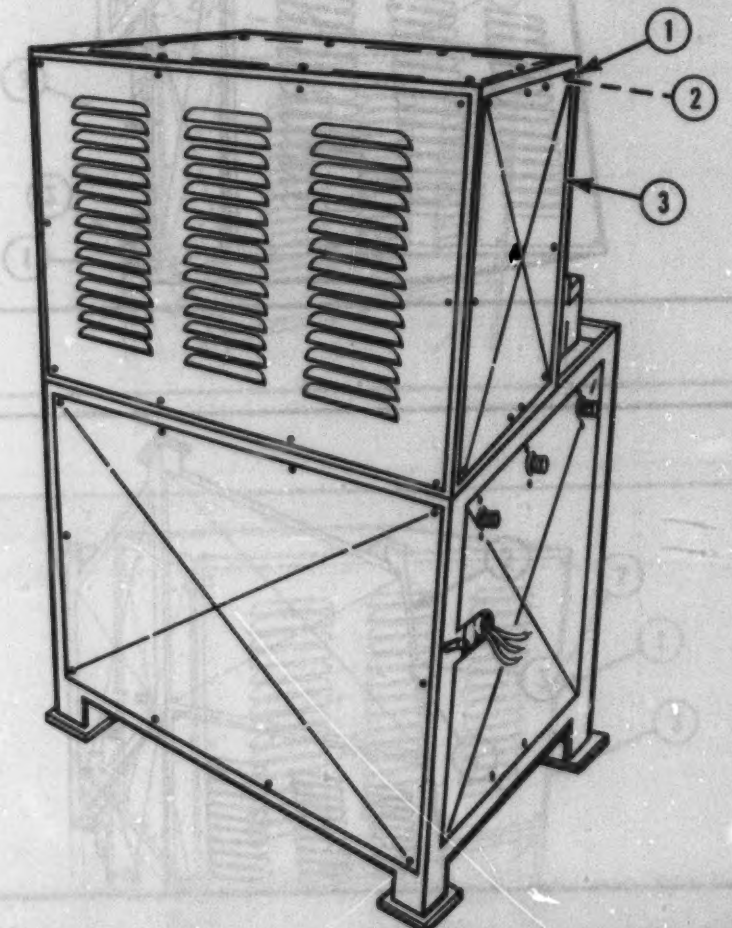
3 RH UPPER SIDE PANEL (3). Position on tester.

4 EIGHT WASHERS (2) AND EIGHT SCREWS (1). Install.



4-12. FUEL INJECTOR PUMP TESTER MISCELLANEOUS PARTS—MAINTENANCE INSTRUCTIONS (cont)

REPAIR OF LH UPPER SIDE PANEL



1 EIGHT SCREWS (1) AND EIGHT WASHERS (2). Remove.

2 LH UPPER SIDE PANEL (3). Remove.

NOTE

Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

3 LH UPPER SIDE PANEL (3). Position on tester.

4 EIGHT WASHERS (2) AND EIGHT SCREWS (1). Install.

REPAIR OF FRONT PANEL

1 FOUR SCREWS (1) AND NAMEPLATE (2). Remove.

2 TWELVE SCREWS (3) AND TWELVE WASHERS (4). Remove.

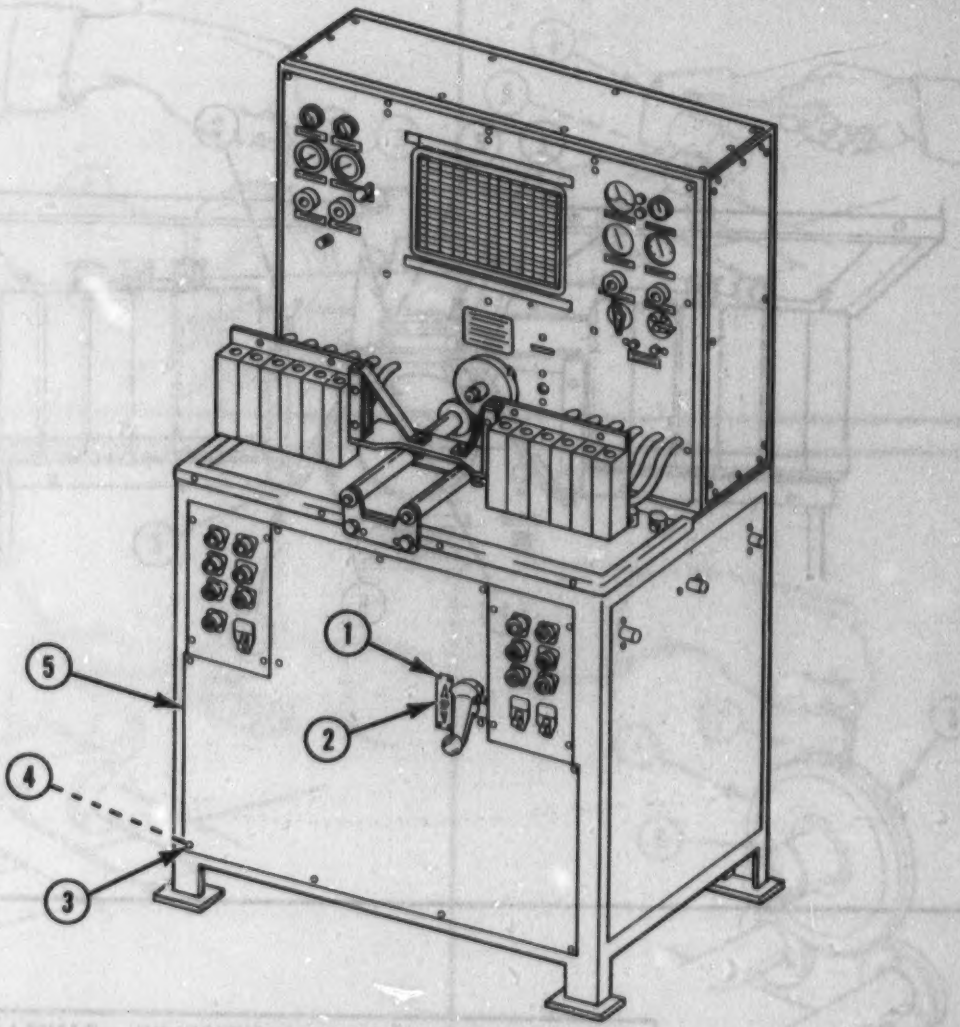
3 FRONT PANEL (5). Remove.

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4 FRONT PANEL (5). Position on tester.

5 TWELVE WASHERS (4) AND TWELVE SCREWS (3). Install.

6 NAMEPLATE (2) AND FOUR SCREWS (1). Install.



4-12. FUEL INJECTOR PUMP TESTER MISCELLANEOUS PARTS— MAINTENANCE INSTRUCTIONS (cont)

REPAIR OF ACCUMULATOR MOUNTING PARTS

1 FOUR SCREWS (1) AND FOUR WASHERS (2). Remove.

2 TWO NUTS (3), TWO WASHERS (2), AND TWO SCREWS (4). Remove.

3 TWO STRAPS (5), PLATE (6), AND BAR (7). Remove.

NOTE

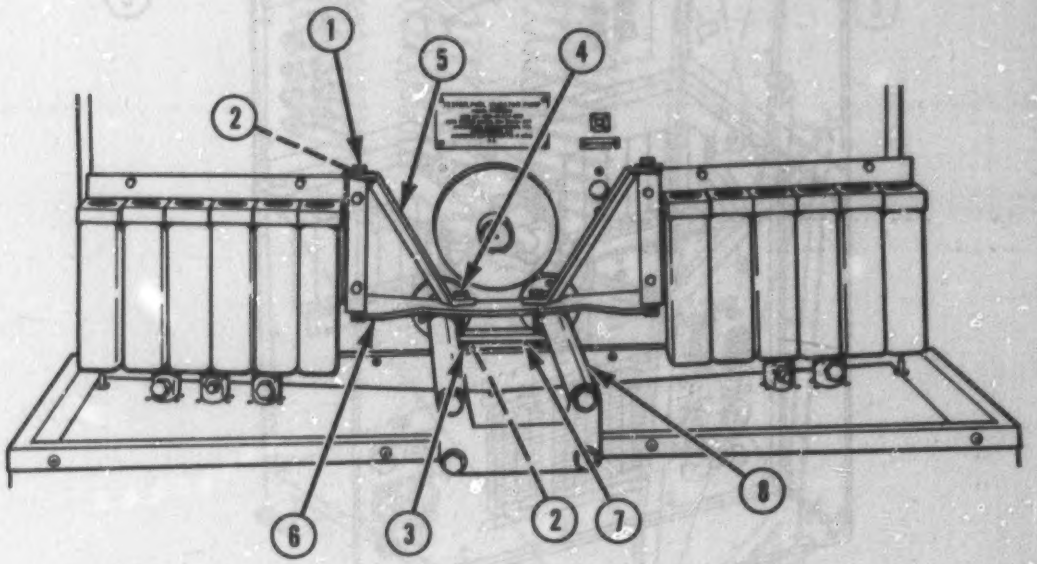
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4 PLATE (6). Position on mounting rails (8) of tester.

5 BAR (7) AND TWO STRAPS (5). Position on tester.

6 TWO SCREWS (4), TWO WASHERS (2), AND TWO NUTS (3). Install.

7 FOUR WASHERS (2) AND FOUR SCREWS (1). Install.



REPAIR OF PLATE PARTS

1 PLATE (1).

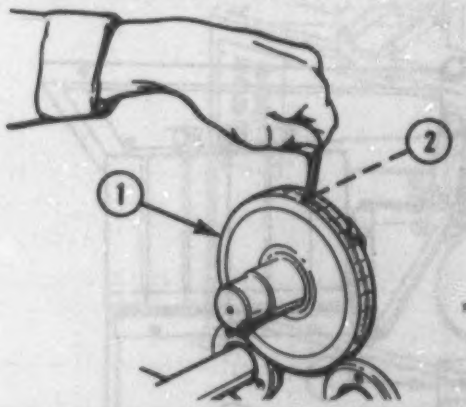
a. Loosen and back off setscrew (2) with socket headscrew key.

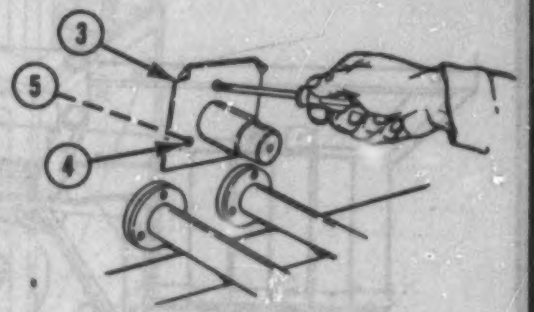
b. Remove.

2 PLATE (3).

a. Remove three screws (4) and three washers (5).

b. Remove.





NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

3 PLATE (3).

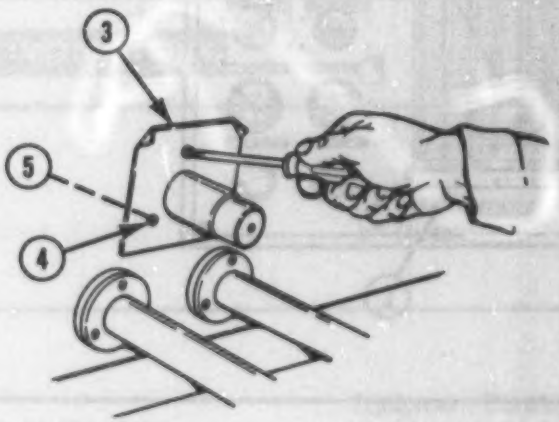
a. Position on front of tester.

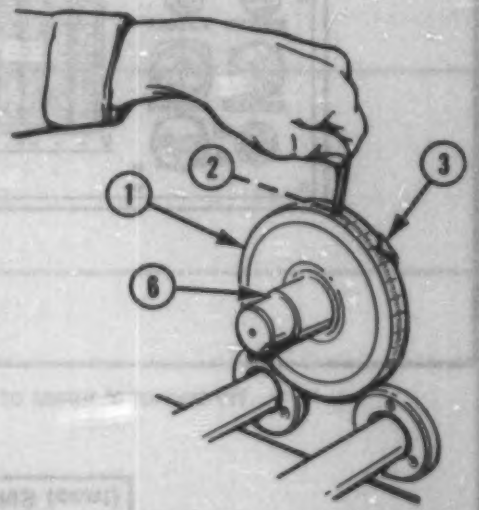
b. Install with three washers (5) and three screws (4).

4 PLATE (1).

a. Position on shouldered shaft (6) leaving 1/32-in. (0.079-cm) gap between plate (3).

b. Tighten setscrew (2) using a socket headscrew key.





4-12. FUEL INJECTOR PUMP TESTER MISCELLANEOUS PARTS—MAINTENANCE INSTRUCTIONS (cont)

REPAIR OF INSTRUMENT PANEL PARTS

1 TEN SCREWS (1) AND TWO NUMBER STRIPS (2 AND 3). Remove.

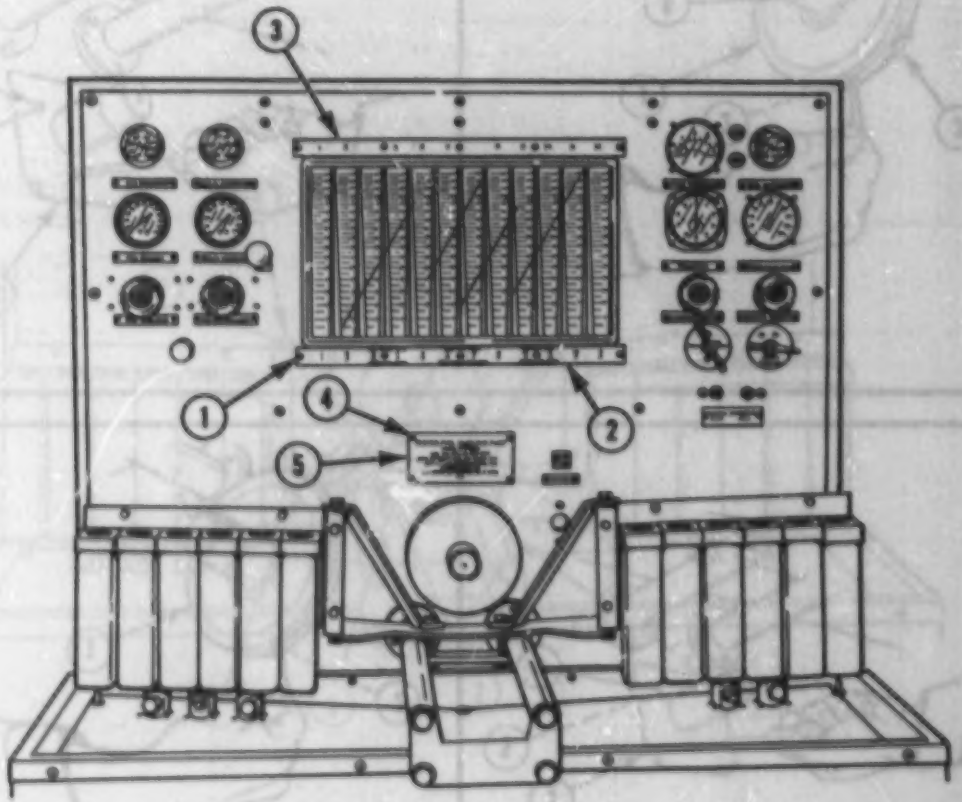
2 FOUR SCREWS (4) AND IDENTIFICATION PLATE (5). Remove.

NOTE

Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

3 IDENTIFICATION PLATE (5) AND FOUR SCREWS (4). Install.

4 TWO NUMBER STRIPS (3 AND 2) AND TEN SCREWS (1). Install.

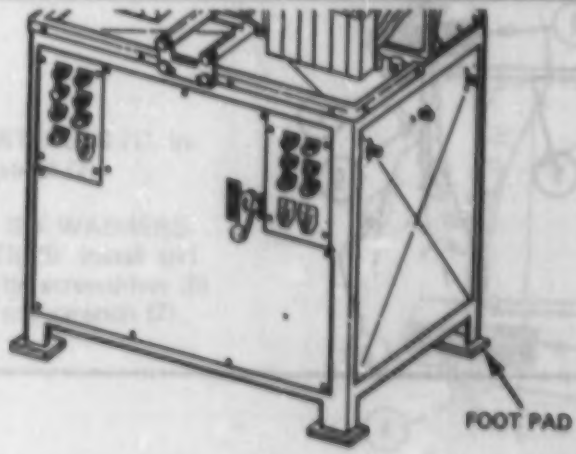


REPAIR OF FOOT PADS

1 FOUR FOOT PADS. Remove and discard.

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

2 FOUR FOOT PADS. Install.



4-13. RH PANEL ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Removal
b. Disassembly
c. Repair
d. Reassembly
e. Installation

INITIAL SETUP

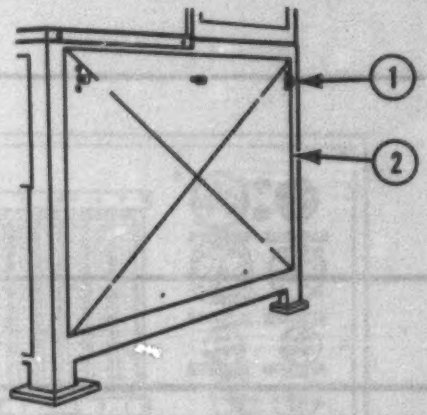
Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

Equipment Conditions
Main power source to tester is turned off

4-13. RH PANEL ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

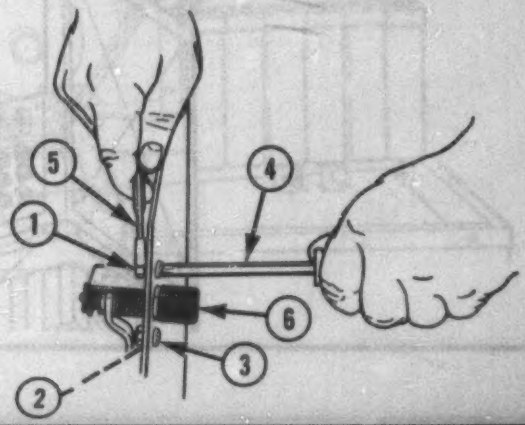
REMOVAL



1 THREE PAWL FASTENERS (1). Turn counterclockwise until they release.

2 RH PANEL ASSEMBLY (2). Remove.

DISASSEMBLY



1 SIX NUTS (1), SIX WASHERS (2), AND SIX SCREWS (3). Remove using cross tip screwdriver (4) and 7/16-in. open end wrench (5).

2 THREE PAWL FASTENERS (6). Remove.

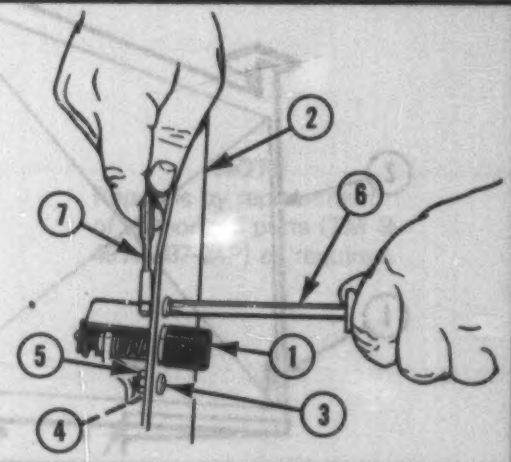
REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

REASSEMBLY

1 THREE PAWL FASTENERS (1). Install on RH lower panel (2).

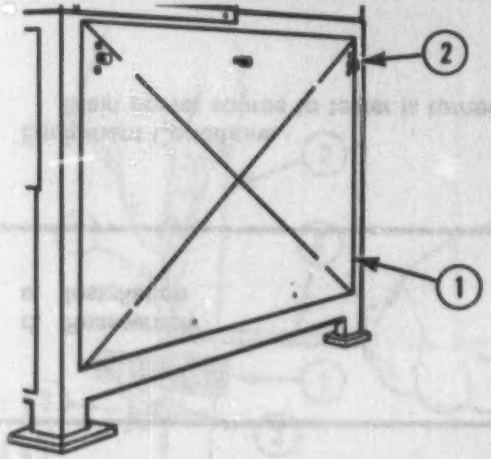
2 SIX SCREWS (3), SIX WASHERS (4), AND SIX NUTS (5). Install and tighten with cross tip screwdriver (6) and 7/16-in. open end wrench (7).



INSTALLATION

1 RH PANEL ASSEMBLY (1). Install on tester.

2 THREE PAWL FASTENERS (2). Tighten.



4-14. LH PANEL ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Removal
b. Disassembly
c. Repair
d. Reassembly
e. Installation

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

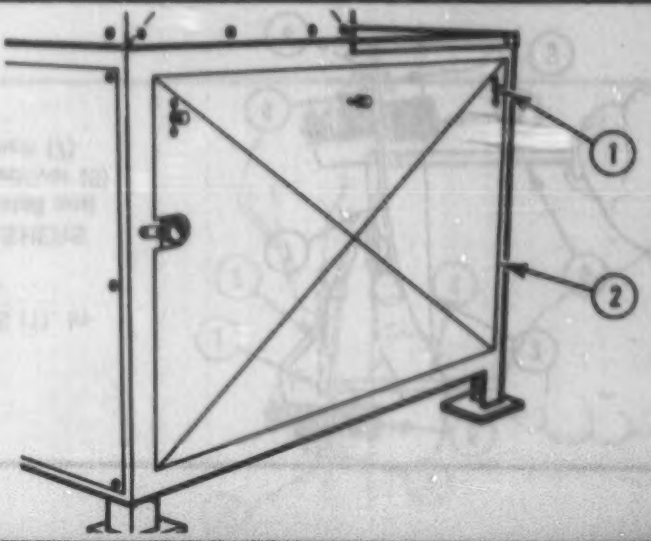
References
TM 9-4910-387-24P

Equipment Conditions
Main power source to tester is turned off

REMOVAL

1 THREE PAWL FASTENERS (1). Turn counterclockwise until they release.

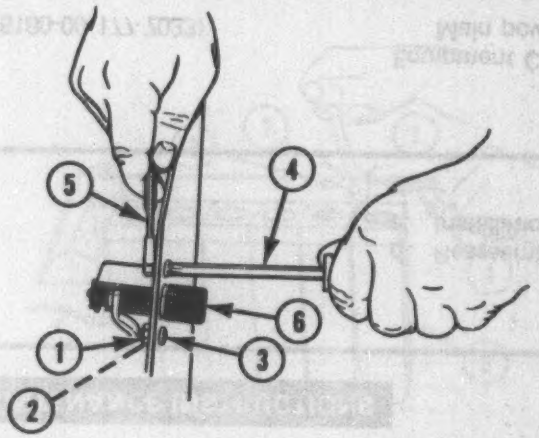
2 LH PANEL ASSEMBLY (2). Remove.



DISASSEMBLY

1 SIX NUTS (1), SIX WASHERS (2), AND SIX SCREWS (3). Remove using cross tip screwdriver (4) and 7/16-in. open end wrench (5).

2 THREE PAWL FASTENERS (6). Remove.



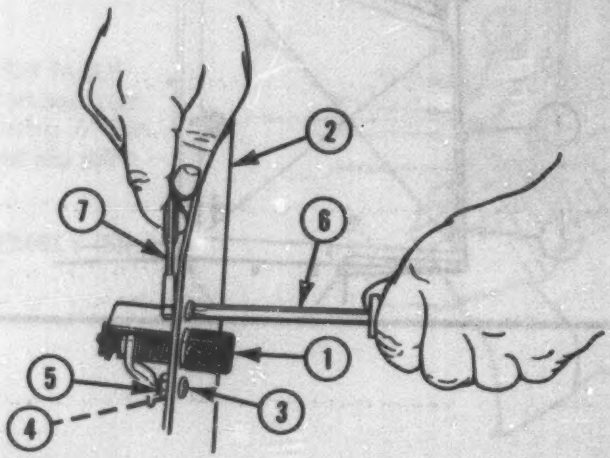
REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

REASSEMBLY

1 THREE PAWL FASTENERS (1). Install on LH lower panel (2).

2 SIX SCREWS (3), SIX WASHERS (4), AND SIX NUTS (5). Install and tighten with cross tip screwdriver (6) and 7/16-in. open end wrench (7).

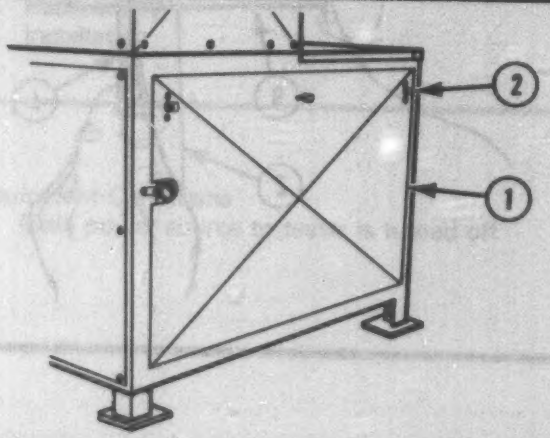


4-14. LH PANEL ASSEMBLY – MAINTENANCE INSTRUCTIONS (cont)

INSTALLATION

1 LH PANEL ASSEMBLY (1). Install on tester.

2 THREE PAWL FASTENERS (2). Tighten.



4-15. RH ACCUMULATOR ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Removal
b. Disassembly
c. Repair
d. Reassembly
e. Installation

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

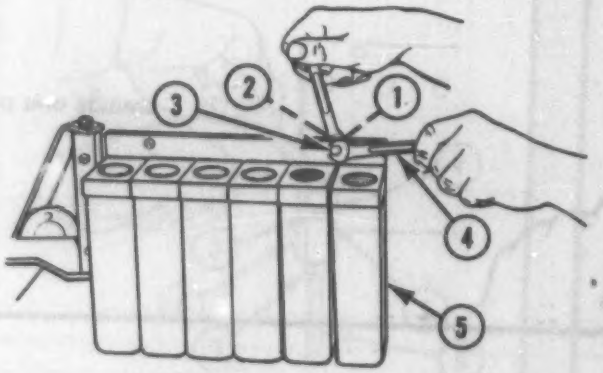
References
TM 9-4910-387-24P

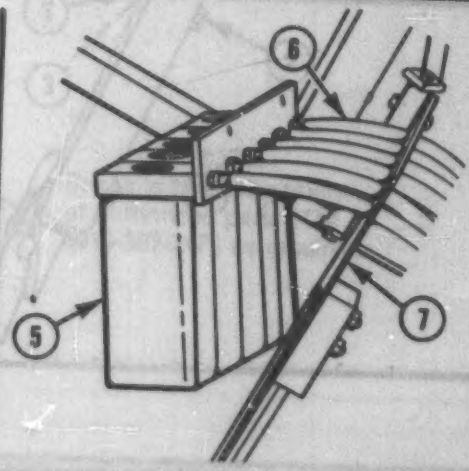
Equipment Conditions
Main power source to tester is turned off

REMOVAL

1 TWO NUTS (1), TWO WASHERS (2), AND TWO SCREWS (3). Remove using two 7/16-in. open end wrenches (4).

2 ACCUMULATOR ASSEMBLY (5). Pull forward so six hoses (6) slide through plate (7).



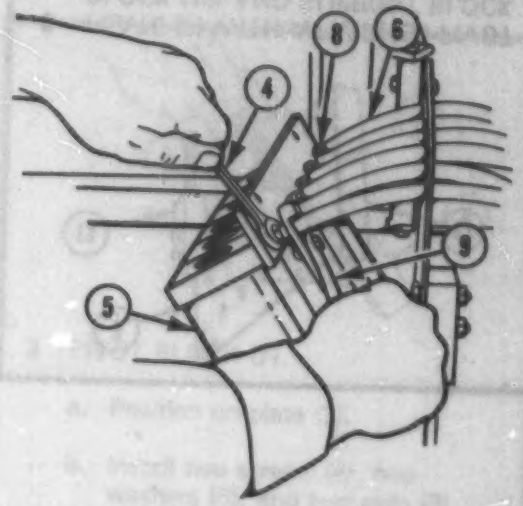


CAUTION

Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

3 SIX HOSES (6) WITH SIX MALE HOSE FITTINGS (8). Remove from accumulator assembly using 7/16-in. open end wrench (4) and slip joint pliers (9).

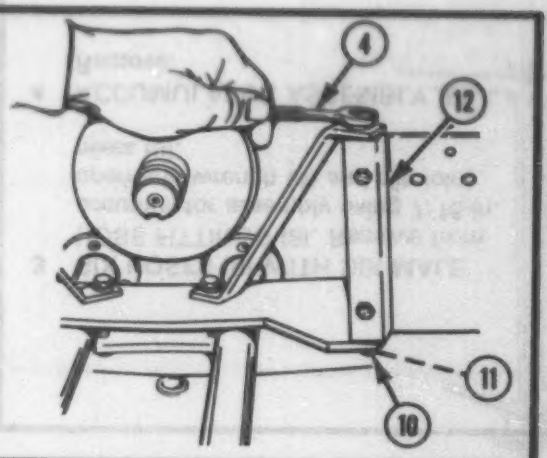
4 ACCUMULATOR ASSEMBLY (5). Remove.

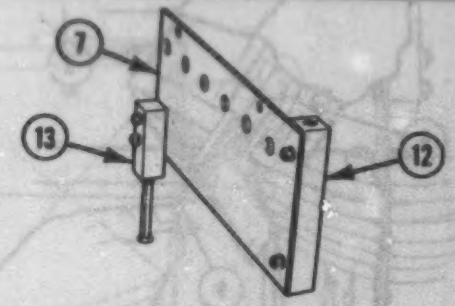


4-15. RH ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

REMOVAL

5 TWO SCREWS (10) AND TWO WASHERS (11). Remove from pivot block (12) using 7/16-in. open end wrench (4).





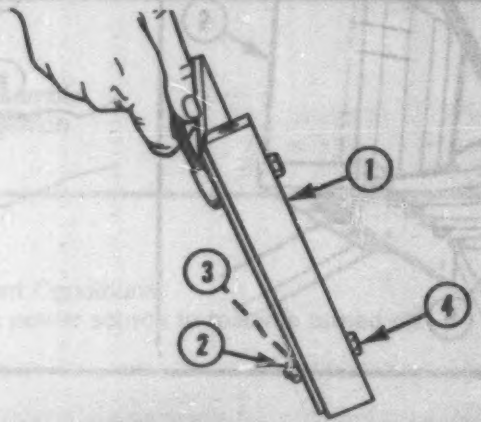
6 PLATE (7) WITH ATTACHED PIVOT BLOCK (12) AND SUPPORT BLOCK (13). Remove.

DISASSEMBLY

1 PIVOT BLOCK (1).

a. Remove two nuts (2), two washers (3), and two screws (4).

b. Remove.



2 SUPPORT BLOCK (5).

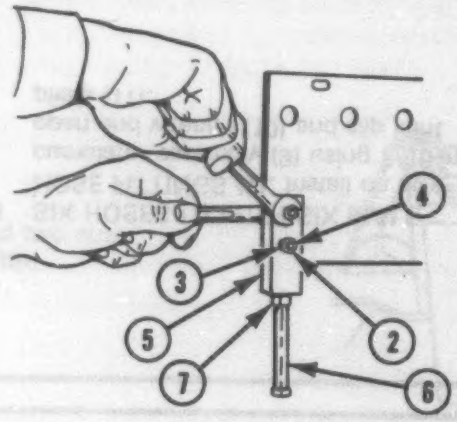
a. Remove two nuts (2), two washers (3), and two screws (4).

b. Remove.

3 BOLT (6).

a. Loosen nut (7).

b. Remove.



REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

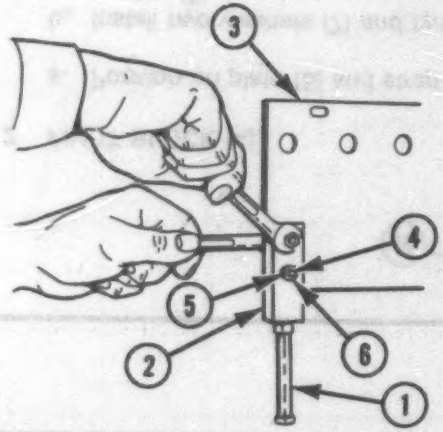
REASSEMBLY

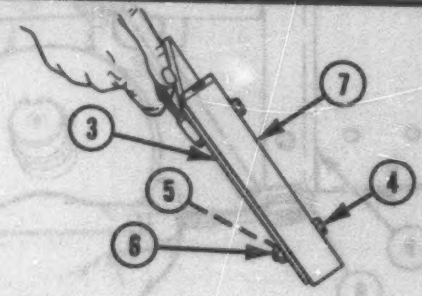
1 BOLT (1). Install loosely into support block (2).

2 SUPPORT BLOCK (2).

a. Position on plate (3).

b. Install two screws (4), two washers (5), and two nuts (6).





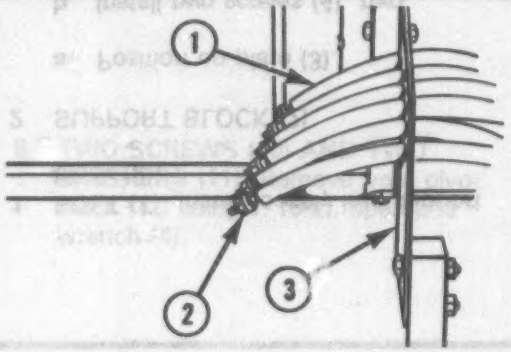
3 PIVOT BLOCK (7).

a. Position on plate (3).

b. Install two screws (4), two washers (5), and two nuts (6).

4-15. RH ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

INSTALLATION

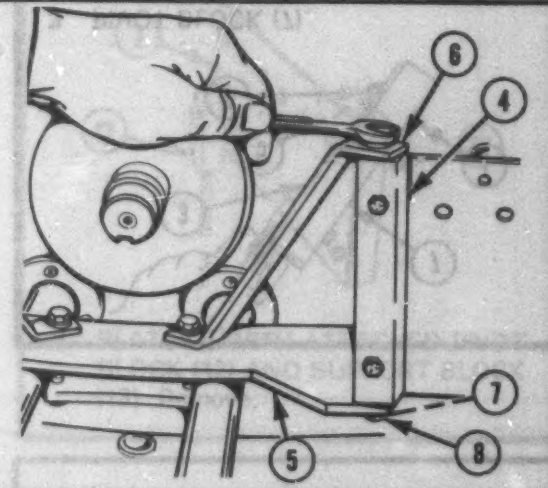


1 SIX HOSES (1) WITH SIX MALE HOSE FITTINGS (2). Put through plate (3).

2 PIVOT BLOCK (4).

a. Position on plate (5) and strap (6).

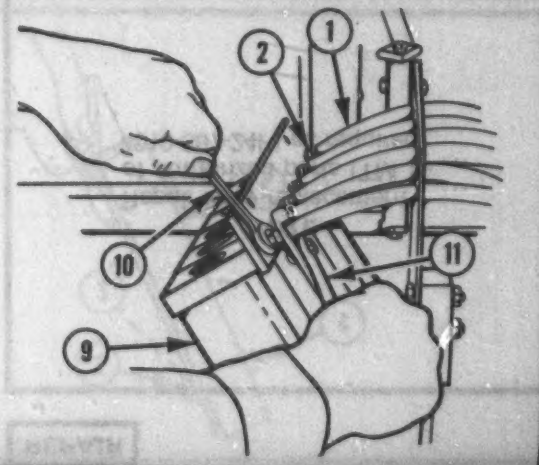
b. Install two washers (7) and two screws (8).



CAUTION

Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

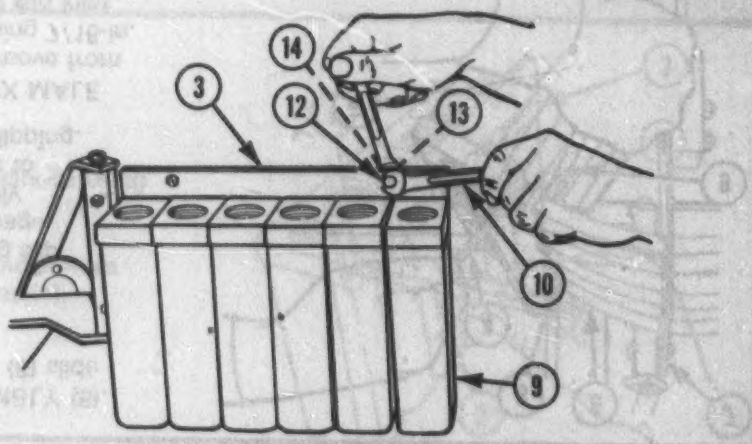
3 SIX HOSES (1) WITH SIX MALE HOSE FITTINGS (2). Install on accumulator assembly (9) using 7/16-in. open end wrench (10) and slip joint pliers (11).



4 ACCUMULATOR ASSEMBLY (9).

a. Position on plate (3).

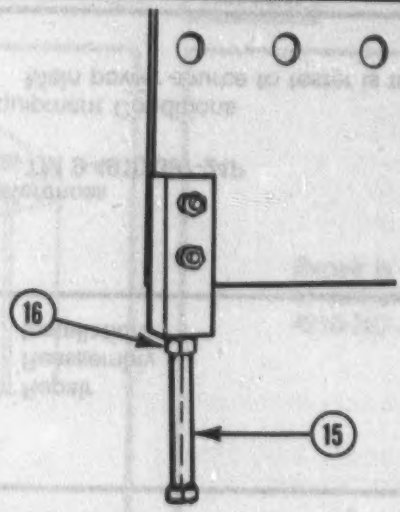
b. Install two screws (12), two washers (13), and two nuts (14) using two 7/16-in. open end wrenches (10).



5 BOLT (15).

a. Adjust to level RH accumulator assembly.

b. Tighten nut (16).



4-16. ACCUMULATOR ASSEMBLY - MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Removal
b. Disassembly
c. Inspection/servicing
d. Repair
e. Reassembly
f. Installation

INITIAL SETUP

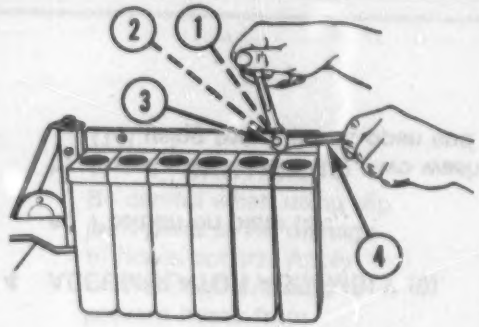
Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Materials/Parts
Cleaning compound (item 3, app C)
Rag (item 14, app C)

References
TM 9-4910-387-24P

Equipment Conditions
Main power source to tester is turned off

REMOVAL



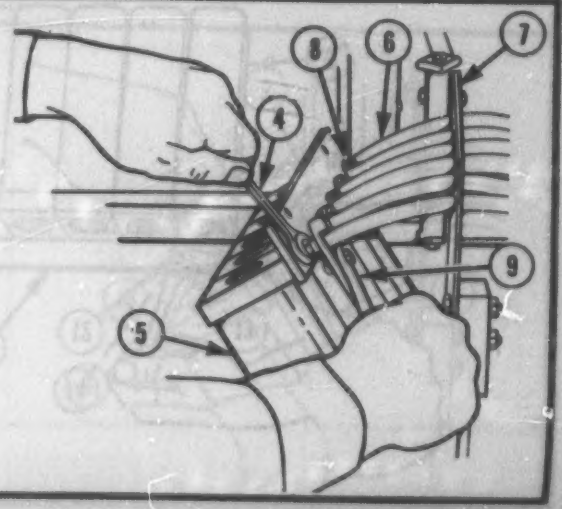
1 TWO NUTS (1), TWO WASHERS (2), AND TWO SCREWS (3). Remove using two 7/16-in. open end wrenches (4).

2 ACCUMULATOR ASSEMBLY (5). Pull forward so six hoses (6) slide through plate (7).

CAUTION

Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

3 SIX HOSES (6) WITH SIX MALE HOSE FITTINGS (8). Remove from accumulator assembly using 7/16-in. open end wrench (4) and slip joint pliers (9).

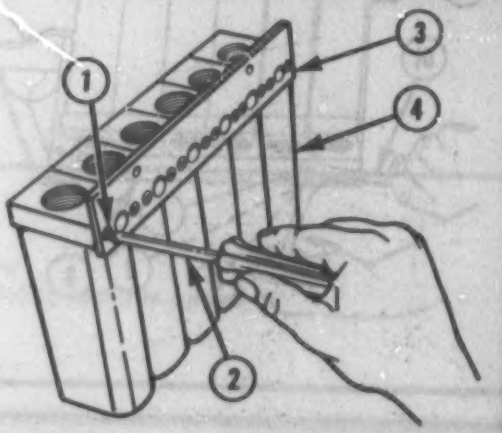


DISASSEMBLY

NOTE
Do not remove the six male hose fittings from the hoses unless the fittings are damaged. To remove the fittings, cut the hoses.

1 TWELVE SCREWS (1). Remove using cross tip screwdriver (2).

2 MOUNTING BAR (3). Remove from accumulator can assemblies (4).

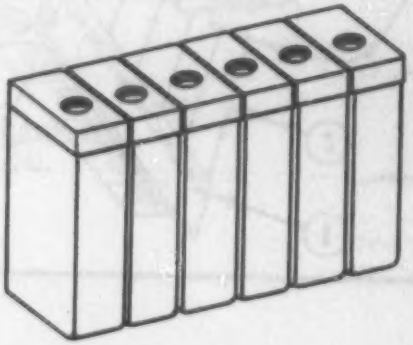


INSPECTION/SERVICING

ACCUMULATOR CAN ASSEMBLIES.

a. Inspect for leaks.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



REPAIR

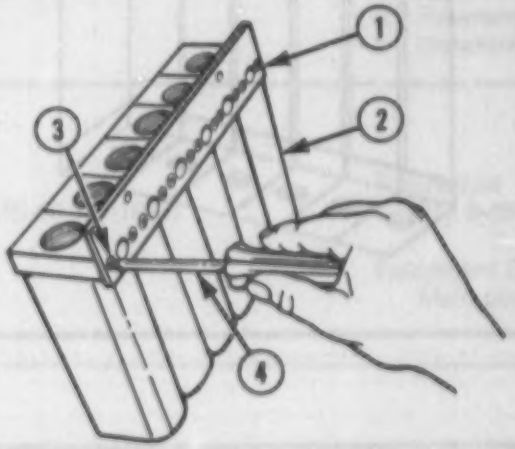
NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-16. ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

REASSEMBLY

1 MOUNTING BAR (1). Position on accumulator can assemblies (2).

2 TWELVE SCREWS (3). Install using cross tip screwdriver (4).



INSTALLATION

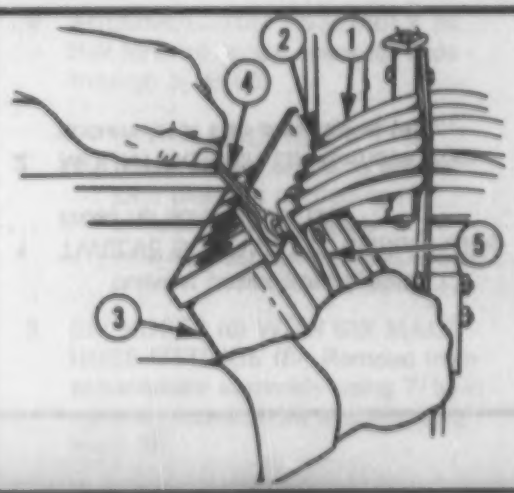
CAUTION
Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

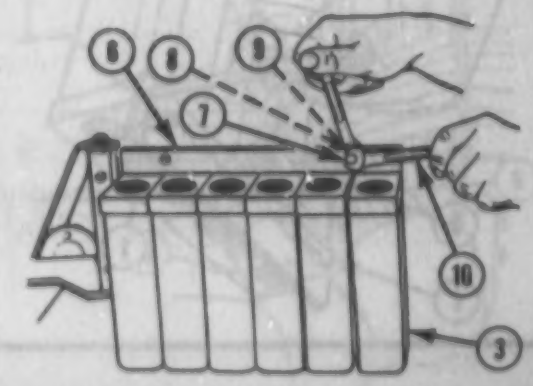
1 SIX HOSES (1) WITH SIX MALE HOSE FITTINGS (2). Install on accumulator assembly (3) using 7/16-in. open end wrench (4) and slip joint pliers (5).

2 ACCUMULATOR ASSEMBLY (3).

a. Position against plate (6).

b. Install two screws (7), two washers (8), and two nuts (9) using two 7/16-in. open end wrenches (10).





4-17. LH ACCUMULATOR ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Removal
b. Disassembly
c. Repair
d. Reassembly
e. Installation

INITIAL SETUP

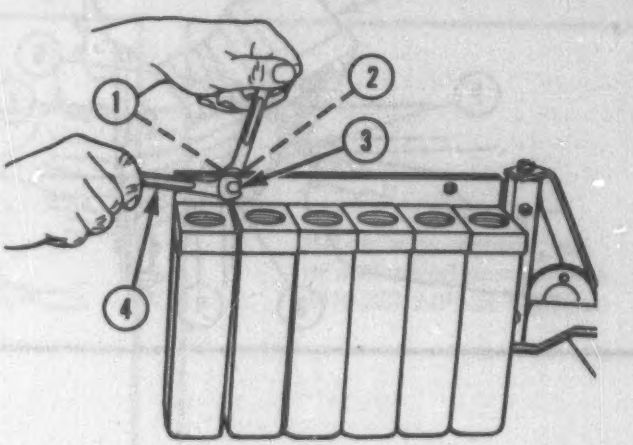
Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

Equipment Conditions
Main power source to tester is turned off

REMOVAL

1 TWO NUTS (1), TWO WASHERS (2), AND TWO SCREWS (3). Remove using two 7/16-in. open end wrenches (4).



4-17. LH ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

REMOVAL (cont)

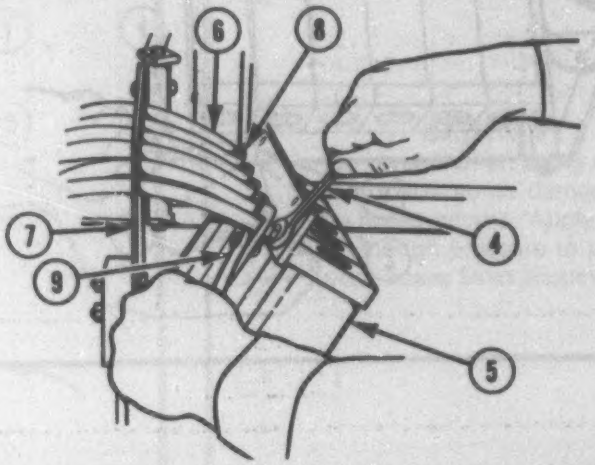
CAUTION

Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

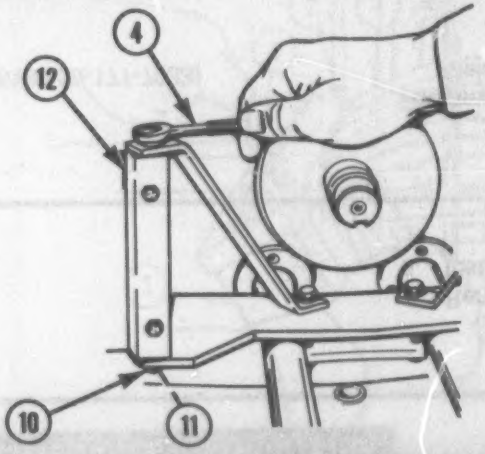
2 ACCUMULATOR ASSEMBLY (5). Pull forward so six hoses (6) slide through plate (7).

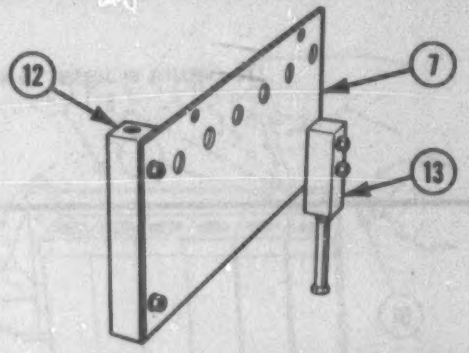
3 SIX HOSES (6) WITH SIX MALE HOSE FITTINGS (8). Remove from accumulator assembly using 7/16-in. open end wrench (4) and slip joint pliers (9).

4 ACCUMULATOR ASSEMBLY (5). Remove.



5 TWO SCREWS (10) AND TWO WASHERS (11). Remove from pivot block (12) using 7/16-in. open end wrench (4).





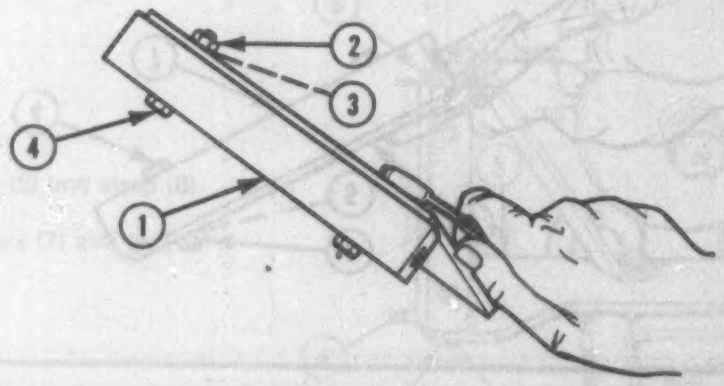
6 PLATE (7) WITH ATTACHED PIVOT BLOCK (12) AND SUPPORT BLOCK (13). Remove.

DISASSEMBLY

1 PIVOT BLOCK (1).

a. Remove two nuts (2), two washers (3), and two screws (4).

b. Remove.



2 SUPPORT BLOCK (5).

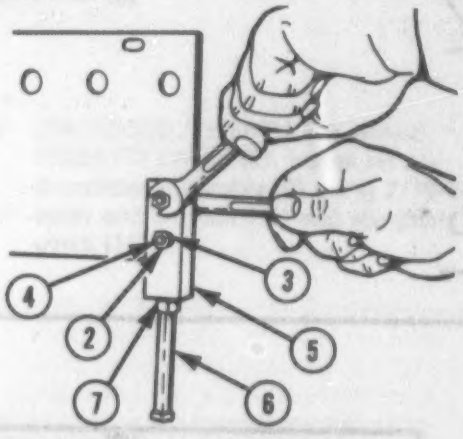
a. Remove two nuts (2), two washers (3), and two screws (4).

b. Remove.

3 BOLT (6).

a. Loosen nut (7).

b. Remove.



REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-17. LH ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

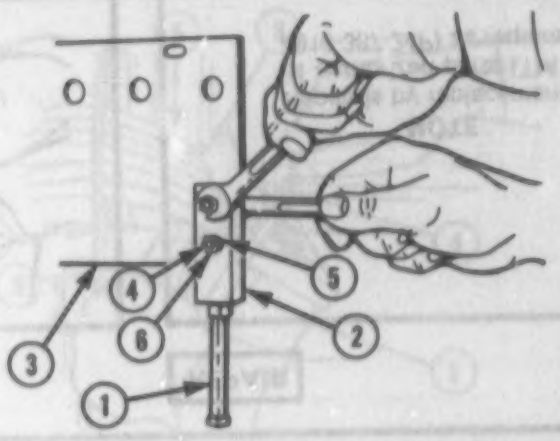
REASSEMBLY

1 BOLT (1). Install loosely into support block (2).

2 SUPPORT BLOCK (2).

a. Position on plate (3).

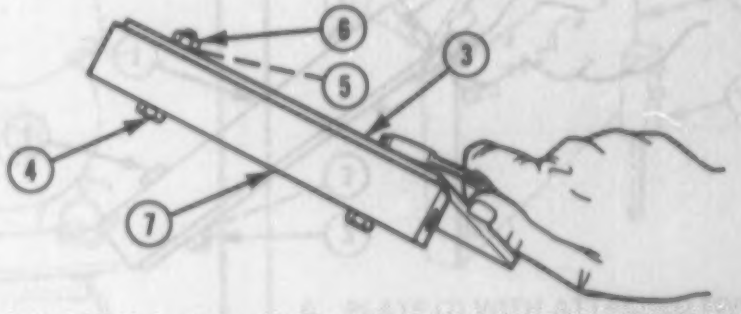
b. Install two screws (4), two washers (5), and two nuts (6).

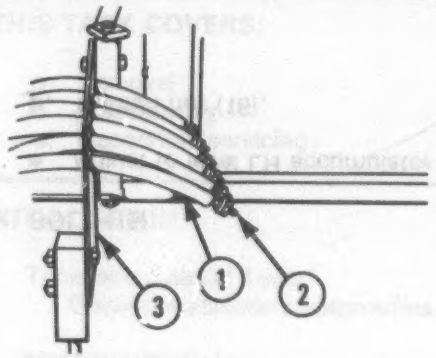


3 PIVOT BLOCK (7).

a. Position on plate (3).

b. Install two screws (4), two washers (5), and two nuts (6).



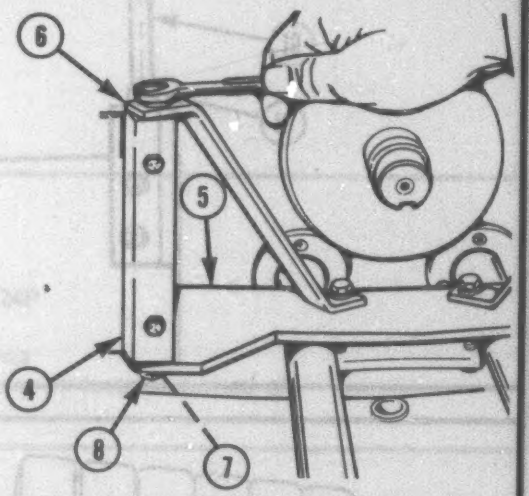


1 SIX HOSES (1) WITH SIX MALE HOSE FITTINGS (2). Put through plate (3).

2 PIVOT BLOCK (4).

a. Position on plate (5) and strap (6).

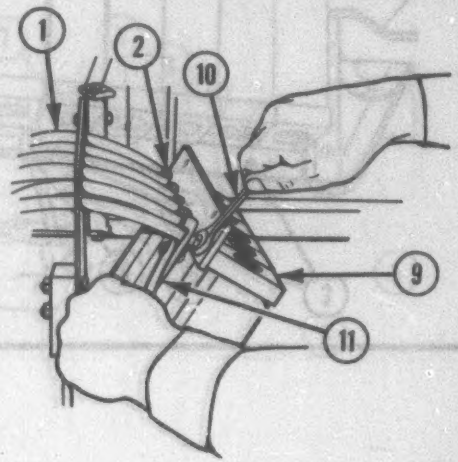
b. Install two washers (7) and two screws (8).



CAUTION

Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

3 SIX HOSES (1) WITH SIX MALE HOSE FITTINGS (2). Install on accumulator assembly (9) using 7/16-in. open end wrench (10) and slip joint pliers (11).



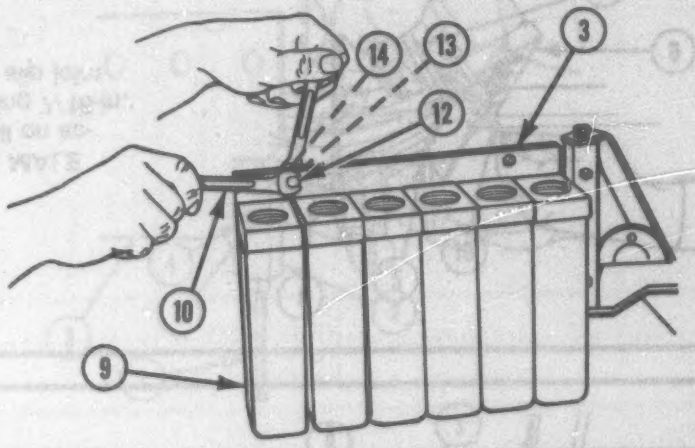
4-17. LH ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

INSTALLATION (cont)

4 ACCUMULATOR ASSEMBLY (9).

a. Position on plate (3).

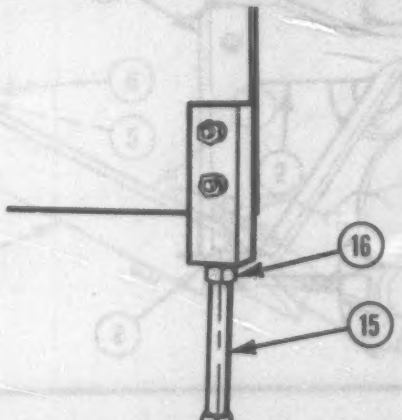
b. Install two screws (12), two washers (13), and two nuts (14) using two 7/16-in. open end wrenches (10).



5 BOLT (15).

a. Adjust to level LH accumulator assembly.

b. Tighten nut (16).



4-18. ACCUMULATOR ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Removal
b. Disassembly
c. Inspection/servicing
d. Repair
e. Reassembly
f. Installation

INITIAL SETUP

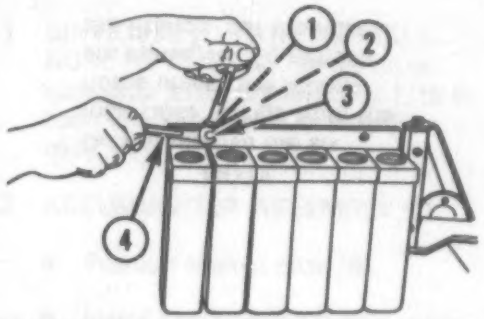
Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Materials/Parts
Cleaning compound (item 3, app C)
Rag (item 14, app C)

References
TM 9-4910-387-24P *

Equipment Conditions
Main power source to tester is turned off

REMOVAL

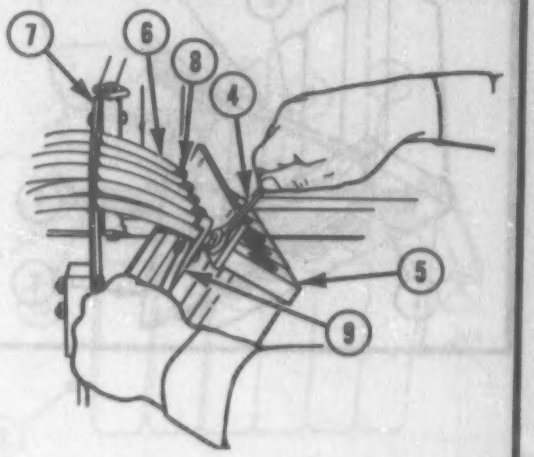


1 TWO NUTS (1), TWO WASHERS (2), AND TWO SCREWS (3). Remove using two 7/16-in. open end wrenches (4).

2 ACCUMULATOR ASSEMBLY (5). Pull forward so six hoses (6) slide through plate (7).

CAUTION
Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

3 SIX HOSES (6) WITH SIX MALE HOSE FITTINGS (8). Remove from accumulator assembly using 7/16-in. open end wrench (4) and slip joint pliers (9).



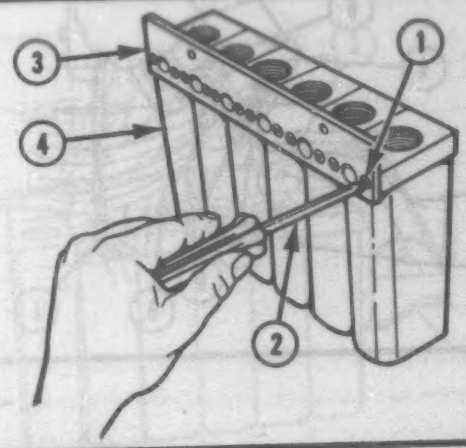
4-18. ACCUMULATOR ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

DISASSEMBLY

NOTE
Do not remove the six male hose fittings from the hoses unless the fittings are damaged. To remove the fittings, cut the hoses.

1 TWELVE SCREWS (1). Remove using cross tip screwdriver (2).

2 MOUNTING BAR (3). Remove from accumulator can assemblies (4).

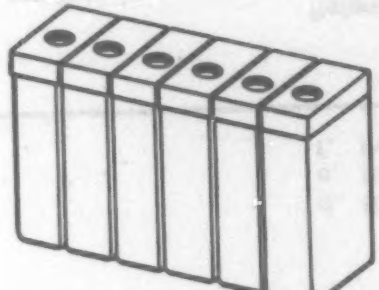


INSPECTION/SERVICING

ACCUMULATOR CAN ASSEMBLIES.

a. Inspect for leaks.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



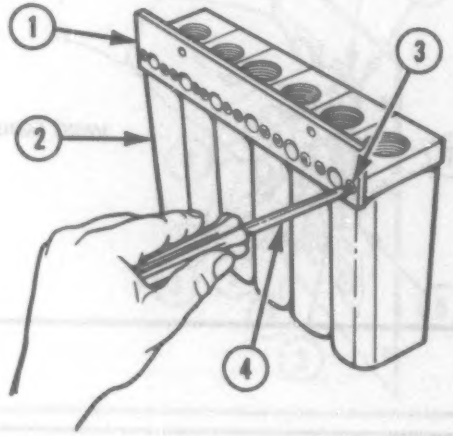
REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

REASSEMBLY

1 MOUNTING BAR (1). Position on accumulator can assemblies (2).

2 TWELVE SCREWS (3). Install using cross tip screwdriver (4).



INSTALLATION

CAUTION

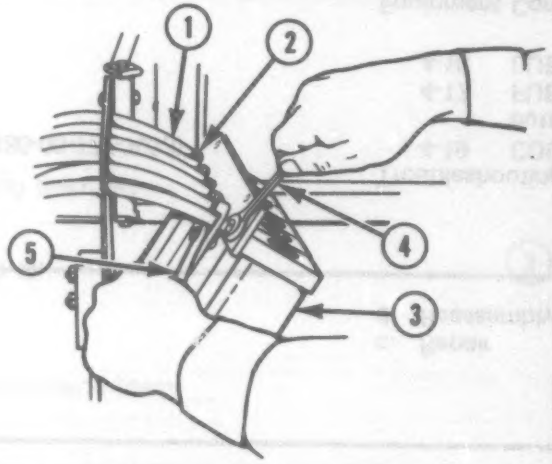
Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

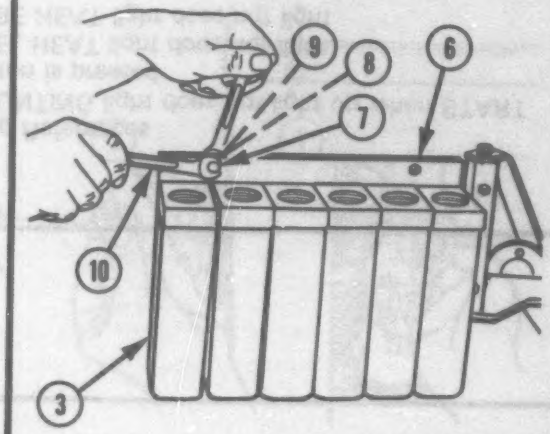
1 SIX HOSES (1) WITH SIX MALE HOSE FITTINGS (2). Install on accumulator assembly (3) using 7/16-in. open end wrench (4) and slip joint pliers (5).

2 ACCUMULATOR ASSEMBLY (3).

a. Position against plate (6).

b. Install two screws (7), two washers (8), and two nuts (9) using two 7/16-in. open end wrenches (10).





4-19. RH CONTROL EQUIPMENT ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Inspection/servicing
c. Repair
d. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Materials/Parts
Cleaning compound (item 3, app C)
Rag (item 14, app C)

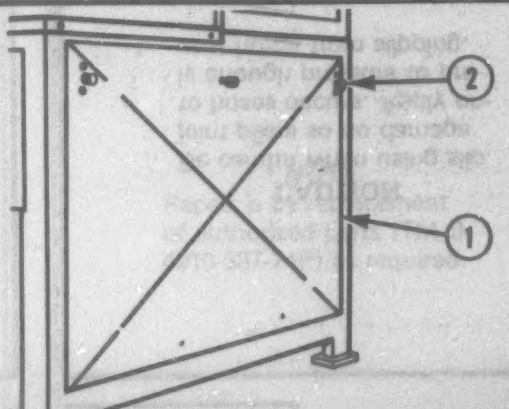
References
TM 9-4910-387-24P

Troubleshooting References
4-19 COUNTING light does not light up when START button is pressed
4-17 FUEL HEAT light does not light
4-18 LUBE HEAT light does not light

Equipment Conditions
Main power source to tester is turned off

DISASSEMBLY

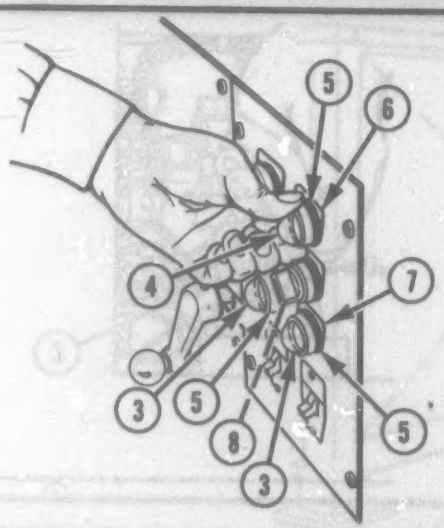
1 RH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.

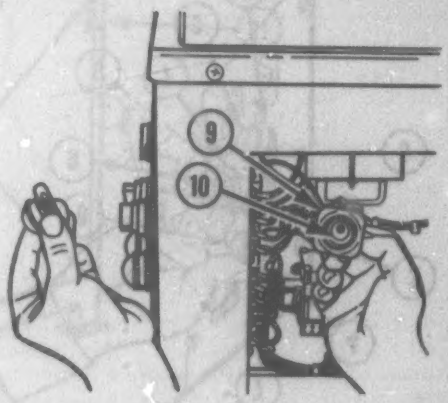


2 TWO CLEAR LENSES (3), AMBER LENS (4), THREE LENS CAPS (5), AND THREE LEGEND PLATES (6, 7, AND 8). Remove from the three indicator lights (9).

3 THREE INDICATOR LIGHTS (9). Pull out from the back.

4 THREE CLEAR LAMPS (10). Remove.





INSPECTION/SERVICING

1 THREE CLEAR LAMPS (1).

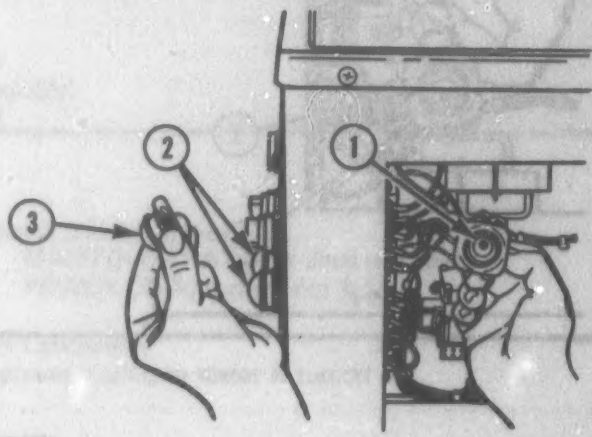
a. Inspect for burnt-out condition.

b. If in good condition, wipe off dust using rag (item 14, app C).

2 TWO CLEAR LENSES (2) AND AMBER LENS (3).

a. Inspect for cracked or broken condition.

b. If in good condition, clean with cleaning compound (item 3, app C) using rag (item 14, app C).



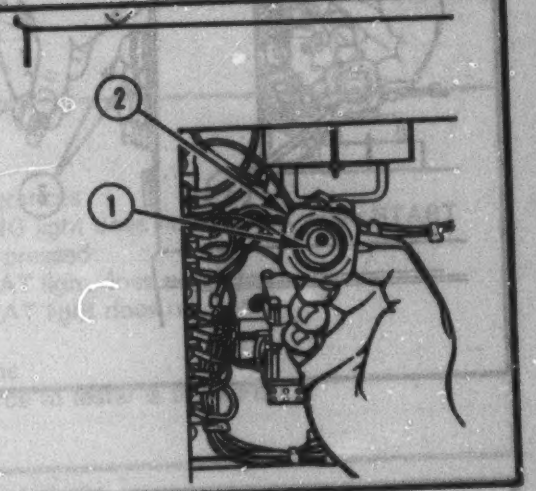
4-19. RH CONTROL EQUIPMENT ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

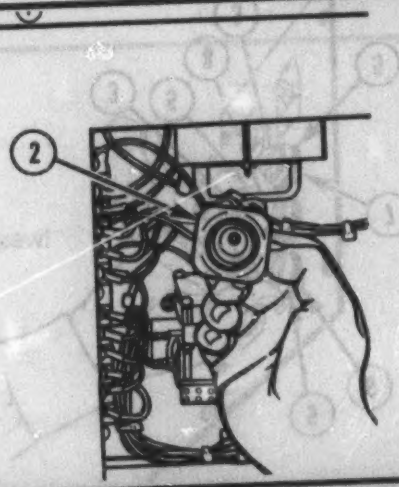
REASSEMBLY

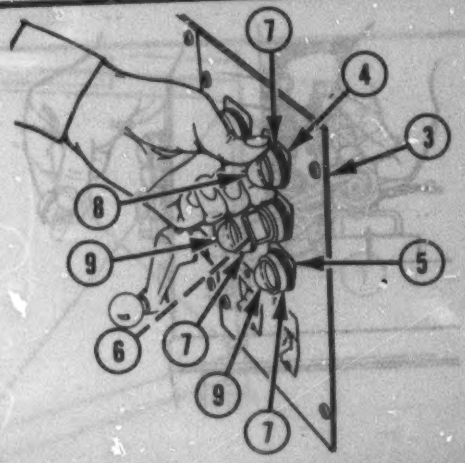
1 THREE CLEAR LAMPS (1). Install in three indicator lights (2).



2 THREE INDICATOR LIGHTS (2). Position in RH control panel (3).

3 THREE LEGEND PLATES (4, 5, AND 6), THREE LENS CAPS (7), AMBER LENS (8), AND TWO CLEAR LENSES (9). Install on three indicator lights (2).

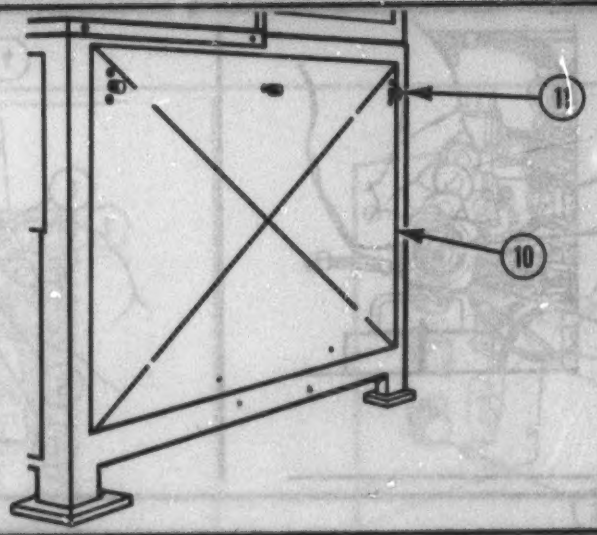




4 RH PANEL ASSEMBLY (10).

a. Install on tester.

b. Tighten three pawl fasteners (11).



4-20. LH CONTROL EQUIPMENT ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Inspection/servicing
c. Repair
d. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Materials/Parts
Cleaning compound (item 3, app C)
Rag (item 14, app C)

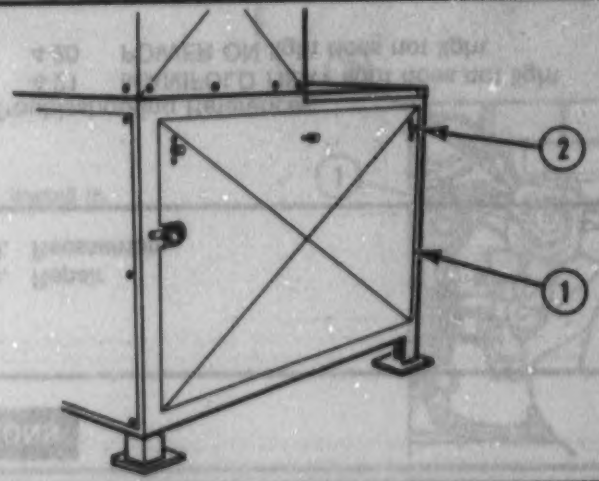
References
TM 9-4910-387-24P

Troubleshooting References
4-21 MANIFOLD HEAT light does not light
4-20 POWER ON light does not light

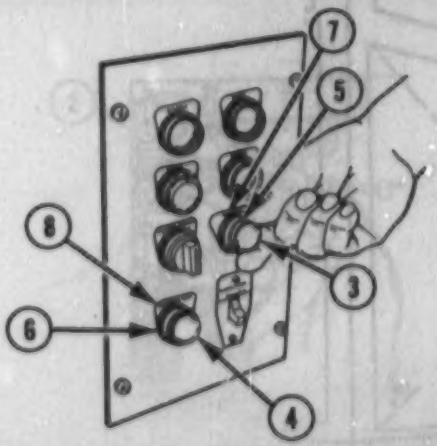
Equipment Conditions
Main power source to tester is turned off

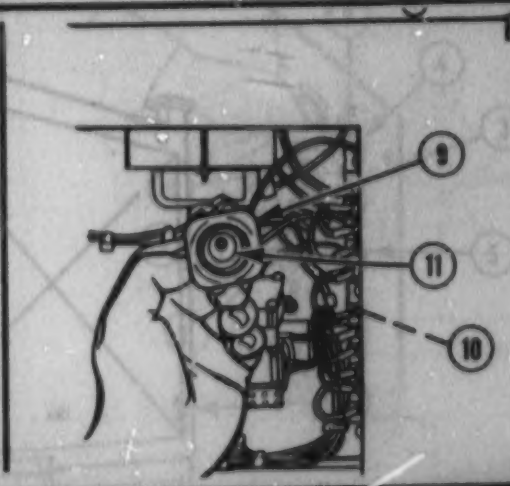
4-20. LH CONTROL EQUIPMENT ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

DISASSEMBLY



1 LH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.





2 AMBER LENS (3), CLEAR LENS (4), TWO LENS CAPS (5 AND 6), AND TWO LEGEND PLATES (7 AND 8). Remove from two indicator lights (9 and 10).

3 TWO INDICATOR LIGHTS (9 AND 10). Pull out from the back.

4 TWO CLEAR LAMPS (11). Remove.

INSPECTION/SERVICING

1 TWO CLEAR LAMPS (1).

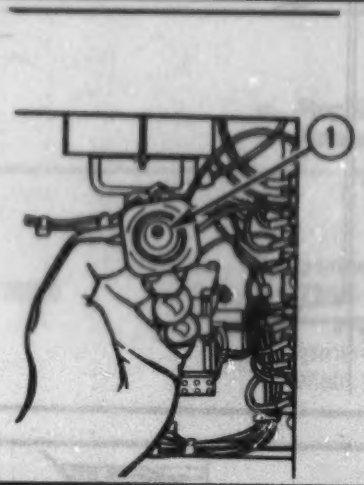
a. Inspect for burnt-out condition.

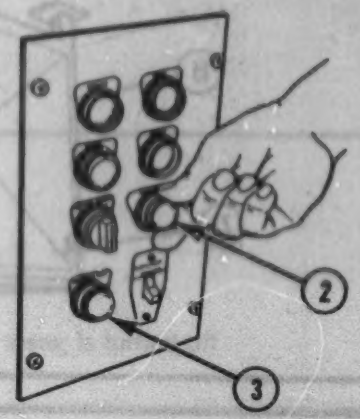
b. If in good condition, wipe off dust using rag (item 14, app C).

2 AMBER LENS (2) AND CLEAR LENS (3).

a. Inspect for cracked or broken condition.

b. If in good condition, clean with cleaning compound (item 3, app C) using rag (item 14, app C).



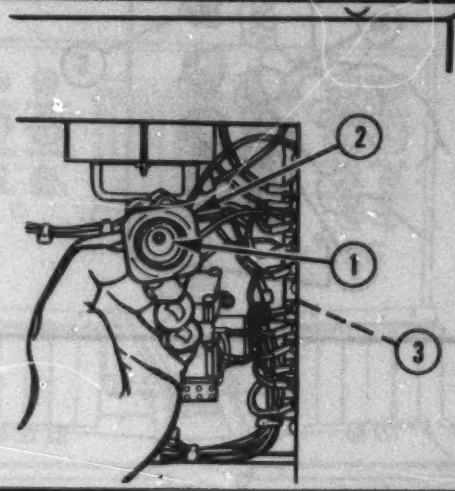


REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

REASSEMBLY

1 TWO CLEAR LAMPS (1). Install in two indicator lights (2 and 3).

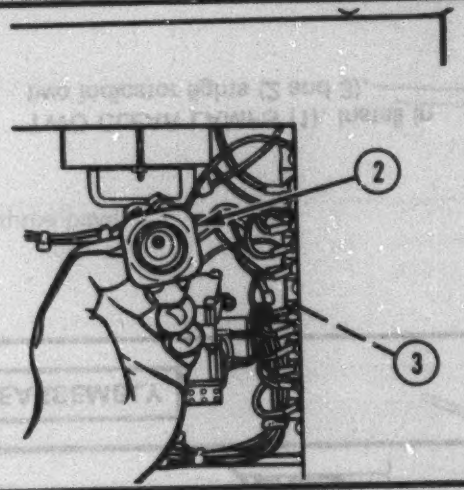


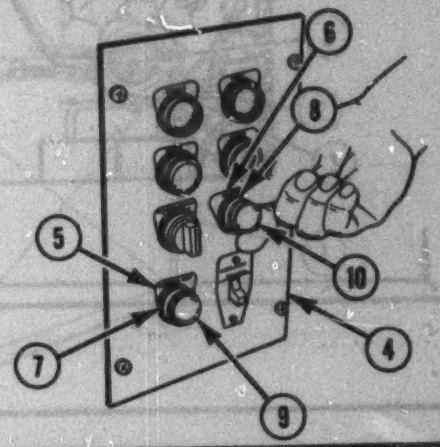
4-20. LH CONTROL EQUIPMENT ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

REASSEMBLY (cont)

2 TWO INDICATOR LIGHTS (2 AND 3). Position in LH control panel (4).

3 TWO LEGEND PLATES (5 AND 6), TWO LENS CAPS (7 AND 8), CLEAR LENS (9), AND AMBER LENS (10). Install on two indicator lights (2 and 3).

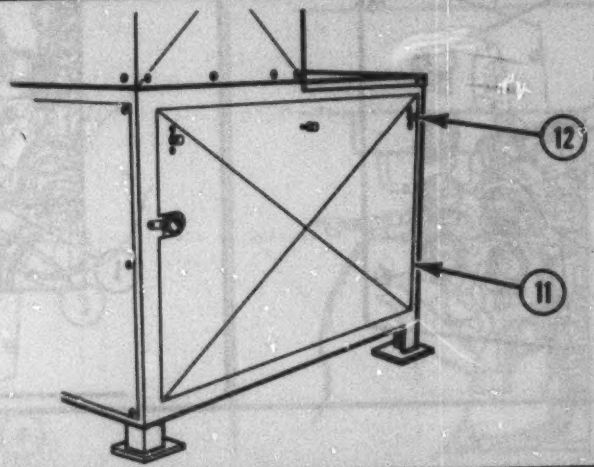




4 LH PANEL ASSEMBLY (11).

a. Install on tester.

b. Tighten three pawl fasteners (12).



THIS TASK COVERS:

a. Disassembly
b. Inspection/servicing
c. Repair
d. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Materials/Parts
Cleaning compound (item 3, app C)
Rag (item 14, app C)

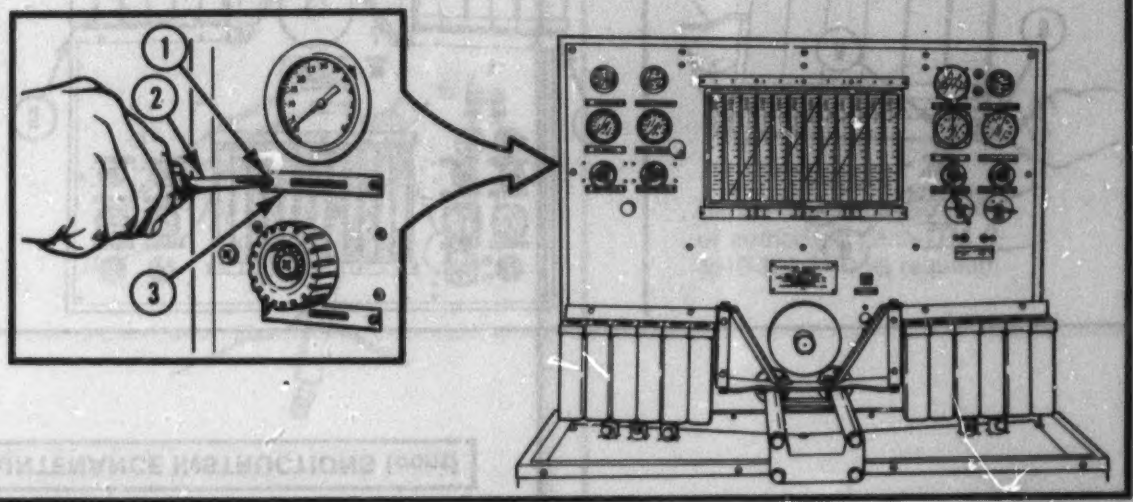
References
TM 9-4910-387-24P

Equipment Conditions
Main power source to tester is turned off

DISASSEMBLY

1 TWENTY-EIGHT SCREWS (1). Remove using cross tip screwdriver (2).

2 FOURTEEN NAMEPLATES (3). Remove.

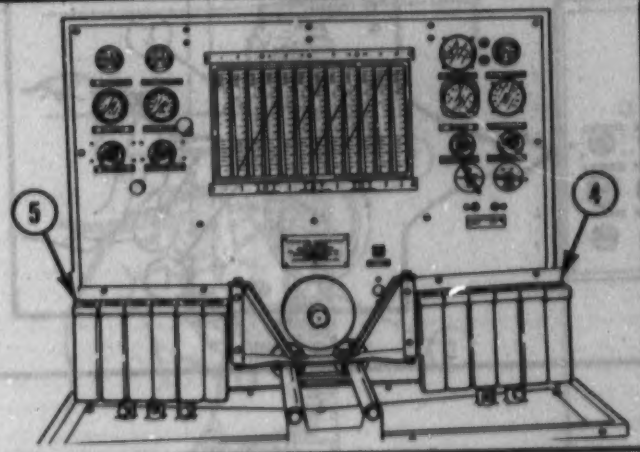


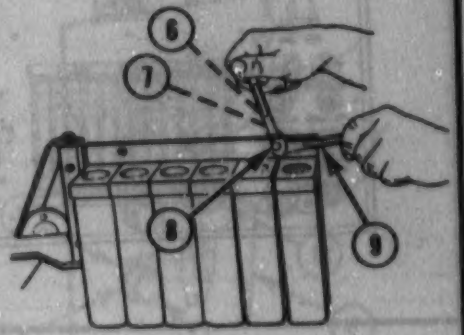
4-21. INSTRUMENT PANEL ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

DISASSEMBLY (cont)

3 RH ACCUMULATOR ASSEMBLY (4) AND LH ACCUMULATOR ASSEMBLY (5).

a. Remove four nuts (6), four washers (7), and four screws (8) using two 7/16-in. open end wrenches (9).

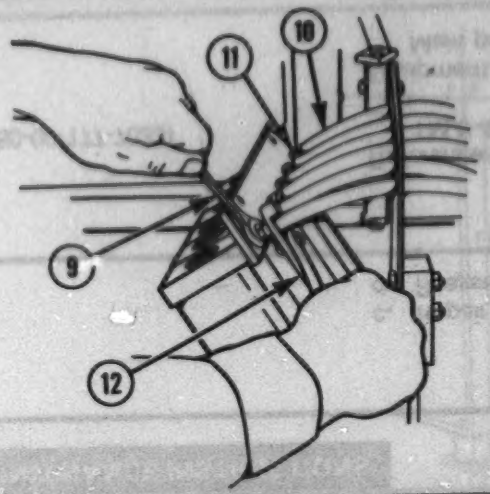


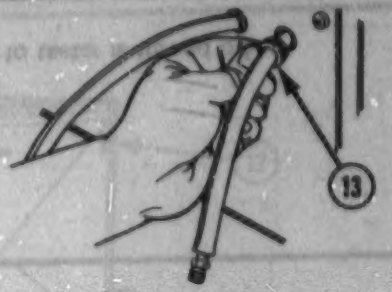


CAUTION
Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

b. Pull accumulators forward and remove twelve hoses (10) with twelve male hose fittings (11) using 7/16-in. open end wrench (9) and slip joint pliers (12).

c. Remove from hoses.





4 TWELVE GROMMETS (13).

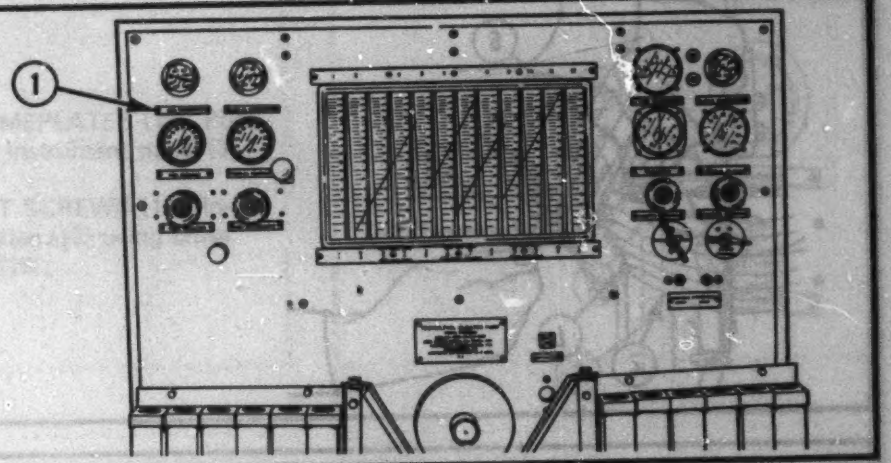
a. Remove by hand through front of tester.

b. Slip off hoses.

1 FOURTEEN NAMEPLATES (1).

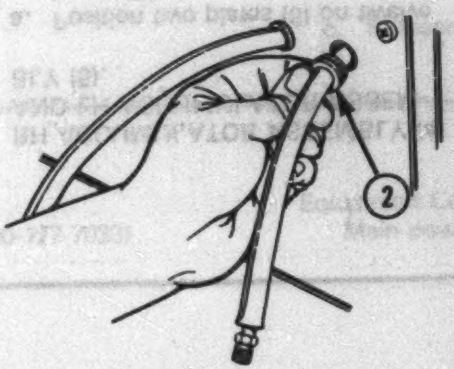
a. Check for damage and nonreadability.

b. Clean with cleaning compound (item 3, app C) using rag (item 14, app C).



REPAIR

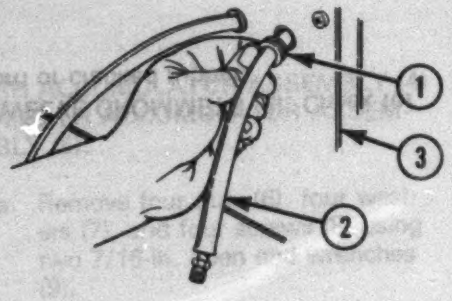
2 TWELVE GROMMETS (2). Check for torn or cracked rubber.



NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-21. INSTRUMENT PANEL ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

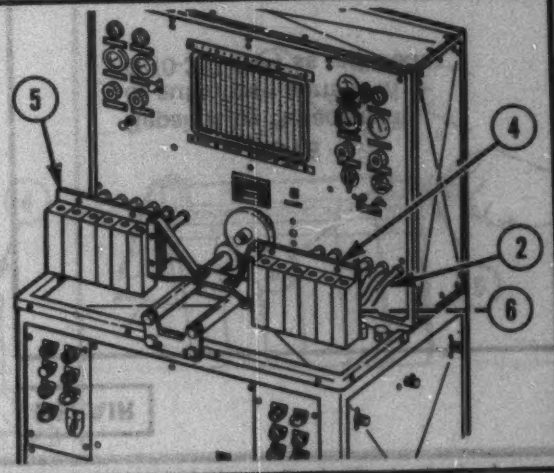
REASSEMBLY



1 TWELVE GROMMETS (1). Slip on twelve hoses (2) and insert in instrument panel (3).

2 RH ACCUMULATOR ASSEMBLY (4) AND LH ACCUMULATOR ASSEMBLY (5).

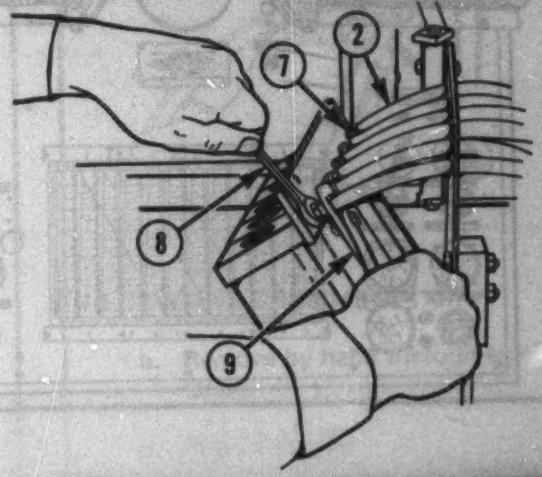
a. Position two plates (6) on twelve hoses (2).

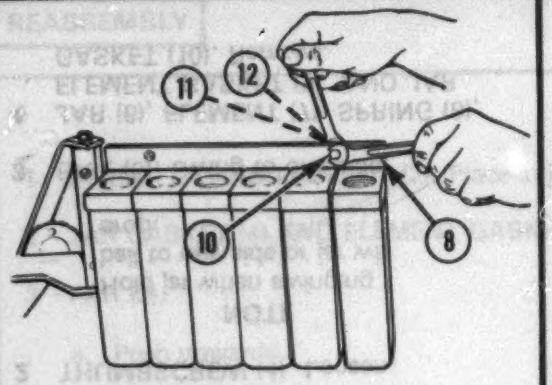


CAUTION

Be careful when using slip joint pliers so no damage to hoses occurs. Apply only enough pressure to prevent hoses from slipping.

b. Connect accumulators to twelve hoses (2) with twelve male hose fittings (7) using 7/16-in. open end wrench (8) and slip joint pliers (9).

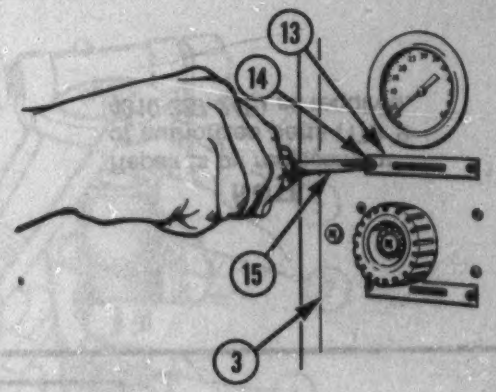




c. Install four screws (10), four washers (11), and four nuts (12) using two 7/16-in. open end wrenches (8).

3 FOURTEEN NAMEPLATES (13). Position in place on instrument panel (3).

4 TWENTY-EIGHT SCREWS (14). Install on nameplates (13) using cross tip screwdriver (15).



4-22. MOISTURE AND OIL TRAP—MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Repair
c. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Equipment Conditions
Main power source to tester is turned off

References
TM 9-4910-387-24P

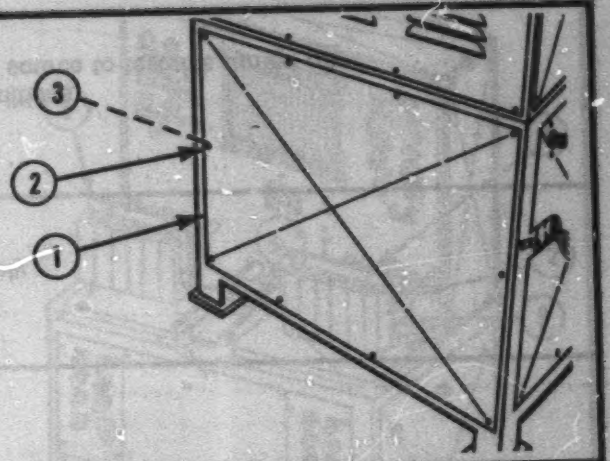
4-22. MOISTURE AND OIL TRAP—MAINTENANCE INSTRUCTIONS (cont)

DISASSEMBLY

1 LOWER BACK PANEL (1).

a. Remove 10 screws (2) and 10 washers (3) using cross tip screwdriver.

b. Remove.

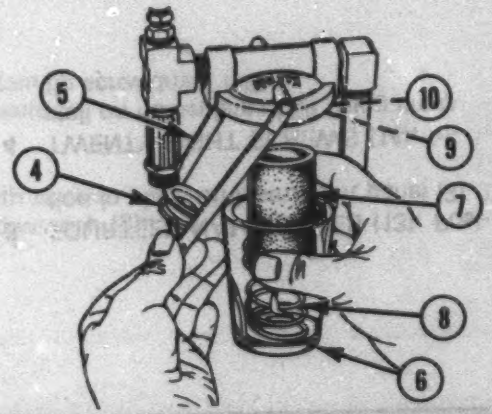


2 THUMBSCREW (4). Loosen.

NOTE
Hold jar when swinging bail to one side or jar will drop.

3 BAIL (5). Swing to one side.

4 JAR (6), ELEMENT (7), SPRING (8), ELEMENT GASKET (9), AND JAR GASKET (10). Remove.



REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

1 SPRING (1) AND ELEMENT (2). Place in jar (3).

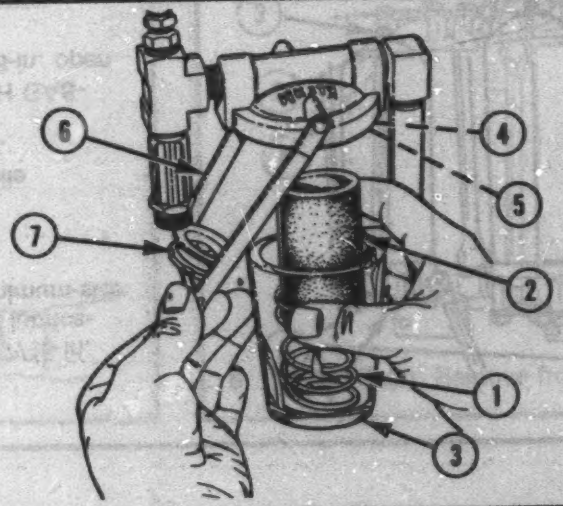
2 JAR GASKET (4) AND ELEMENT GASKET (5). Install.

3 JAR (3).

a. Push upwards.

b. Swing bail (6) underneath.

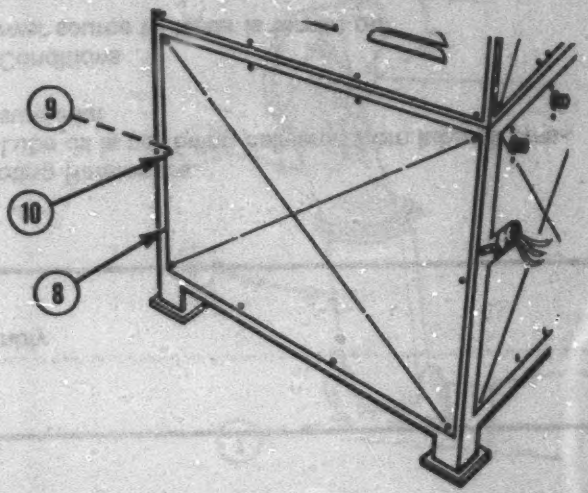
4 THUMBSCREW (7). Tighten.



5 LOWER BACK PANEL (8).

a. Position on tester.

b. Install 10 washers (9) and 10 screws (10) using cross tip screwdriver.



4-23 LUBE OIL FILTER – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Repair
c. Reassembly

INITIAL SETUP

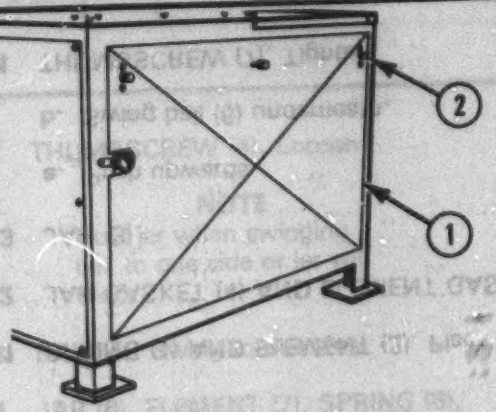
Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

Troubleshooting References
4-23 Lube oil is not being delivered from lube oil pressure inlet

Equipment Conditions
Main power source to tester is turned off

DISASSEMBLY

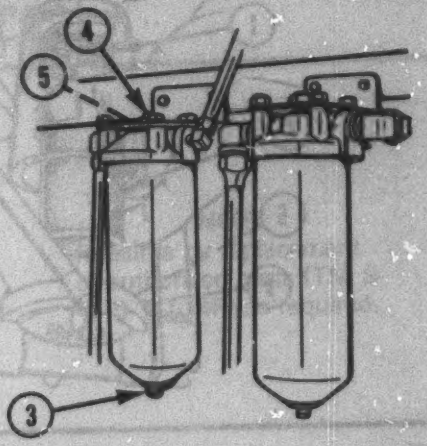


1 LH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.

2 PLUG (3). Remove using a 7/16-in. open end wrench and drain lubricating oil into an available minimum-size 2-qt (1.89-l) container.

NOTE
Hold body assembly while loosening bolt assembly.

3 BOLT ASSEMBLY (4) WITH GASKET (5). Loosen using a 5/8-in. open end wrench.

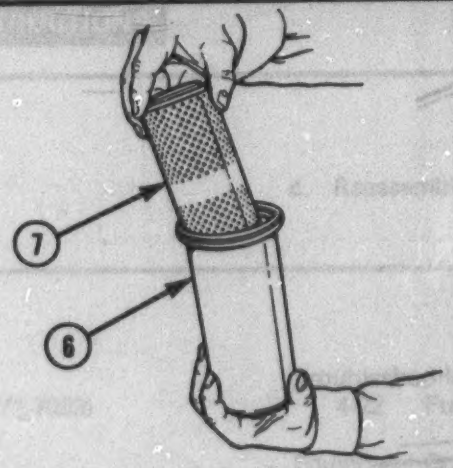


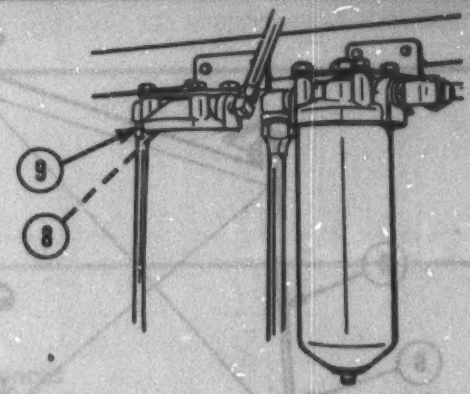
(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

4 BODY ASSEMBLY (6).

a. Turn to remove.

b. Lift out filter element (7).





5 GASKET (8). Remove from cover (9).

REPAIR

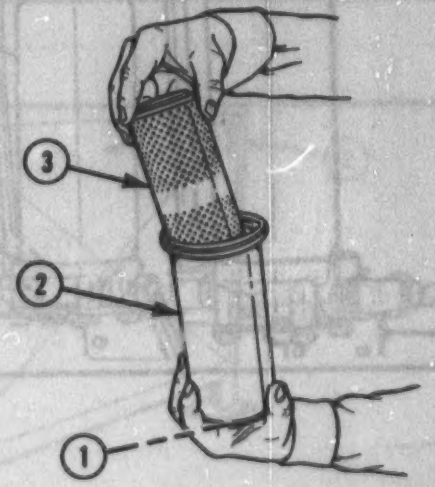
NOTE

Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

REASSEMBLY

1 PLUG (1). Install in body assembly (2).

2 FILTER ELEMENT (3). Place in body assembly (2).



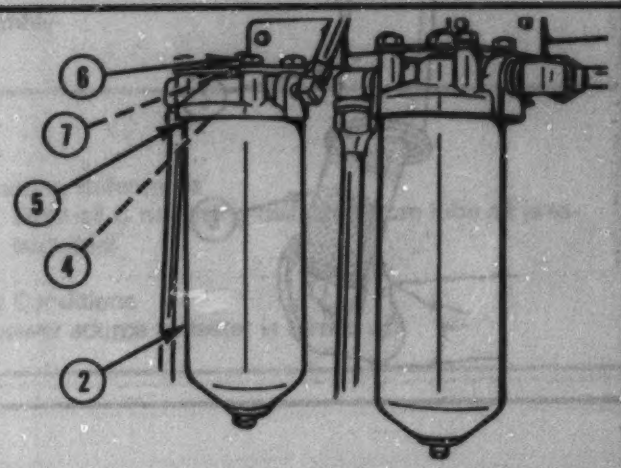
4-23. LUBE OIL FILTER—MAINTENANCE INSTRUCTIONS (cont)

REASSEMBLY (cont)

3 GASKET (4). Install in cover (5).

4 BODY ASSEMBLY (2). Position under cover (5).

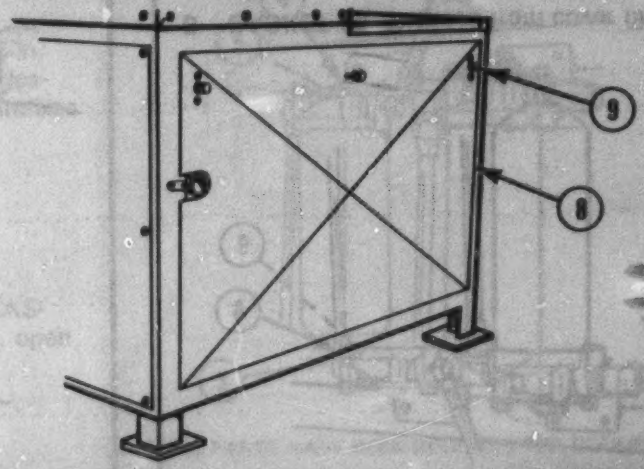
5 BOLT ASSEMBLY (6) WITH GASKET (7). Tighten using a 5/8-in. open end wrench.



6 LH PANEL ASSEMBLY (8).

a. Position on tester.

b. Tighten three pawl fasteners (9).



4-24. PRIMARY FUEL FILTER—MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Repair
c. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

Materials/Parts
Kerosene (item 8, app C)

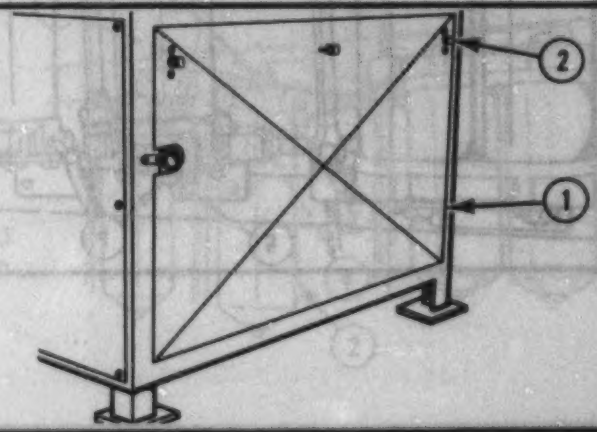
References
TM 9-4910-387-24P

Troubleshooting References
4-22 Fuel is not being delivered from fuel pressure inlet

Equipment Conditions
Main power source to tester is turned off

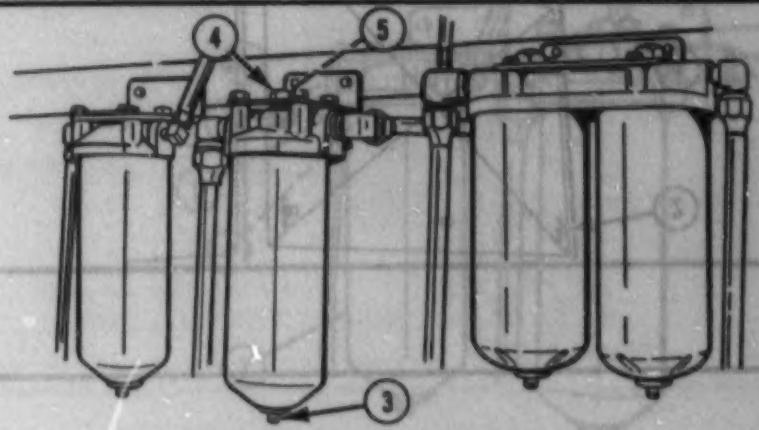
DISASSEMBLY

1 LH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.



4-24. PRIMARY FUEL FILTER—MAINTENANCE INSTRUCTIONS (cont)

DISASSEMBLY (cont)



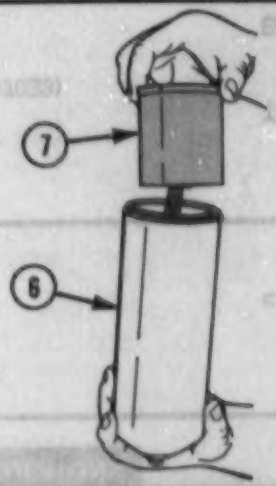
(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

2 PLUG (3). Remove using a 7/16-in. open end wrench and drain fuel into an available minimum-size 2-qt (1.89-l) container.

NOTE

Hold body assembly while loosening bolt assembly.

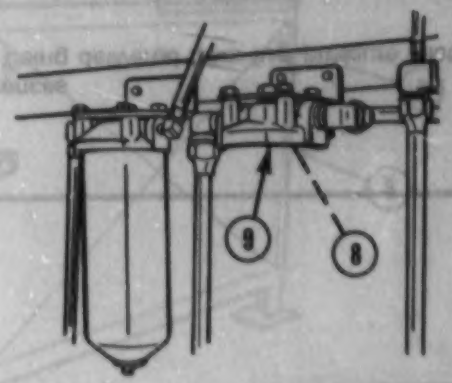
3 BOLT ASSEMBLY (4) WITH FLAT WASHER (5). Loosen using a 1-in. open end wrench.



4 BODY ASSEMBLY (6).

a. Turn to remove.

b. Lift out fluid filter element (7).



5 GASKET (8). Remove from head (9).

REPAIR

WARNING

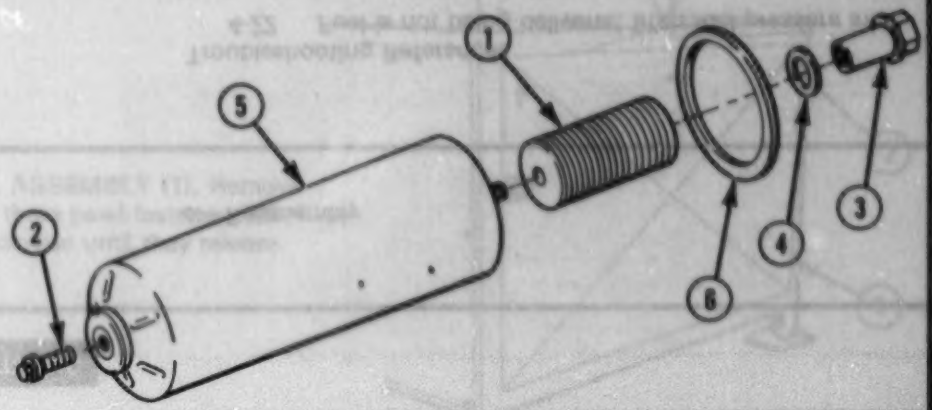
Kerosene is flammable. Injury or death to personnel could result from misuse.

1 FLUID FILTER ELEMENT (1).

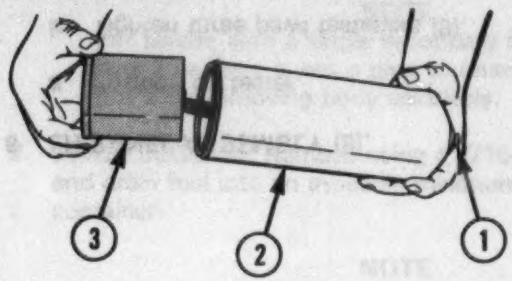
a. Clean by immersing in kerosene (item 8, app C).

b. Replace (TM 9-4910-387-24P) as required.

2 PLUG (2), BOLT ASSEMBLY (3), FLAT WASHER (4), BODY ASSEMBLY (5), AND GASKET (6). Replace (TM 9-4910-387-24P) as required.



REASSEMBLY



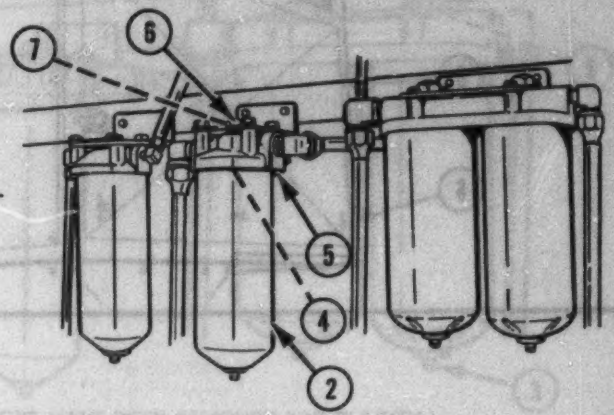
1 PLUG (1). Install in body assembly (2).

2 FLUID FILTER ELEMENT (3). Place in body assembly (2).

3 GASKET (4). Install in head (5).

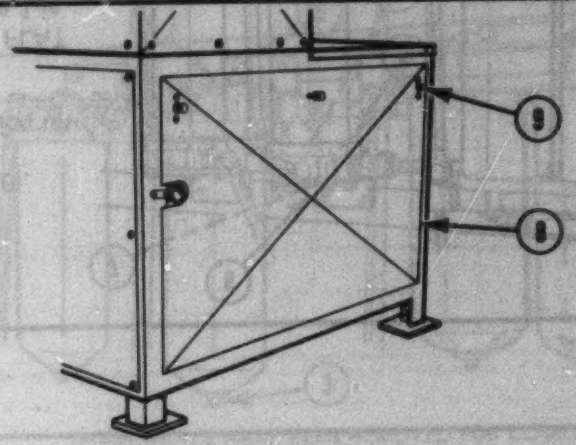
4 BODY ASSEMBLY (2). Position under head (5).

5 BOLT ASSEMBLY (6) WITH FLAT WASHER (7). Tighten using a 1-in. open end wrench.



4-24. PRIMARY FUEL FILTER—MAINTENANCE INSTRUCTIONS (cont)

REASSEMBLY (cont)



6 LH PANEL ASSEMBLY (8).

a. Position on tester.

b. Tighten three pawl fasteners (9).

4-25. SECONDARY FUEL FILTER—MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Repair
c. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

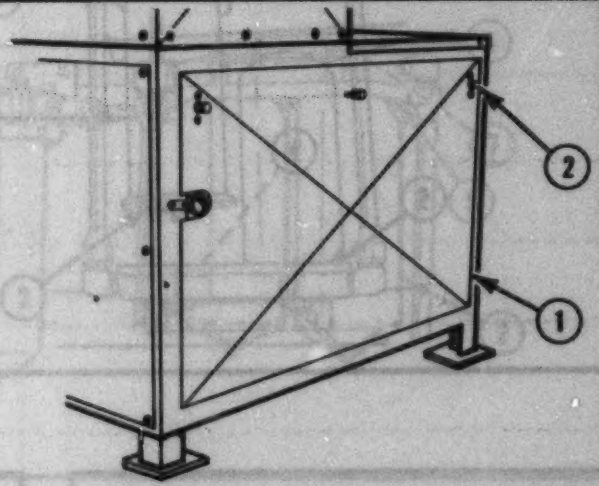
Troubleshooting References
4-22 Fuel is not being delivered from fuel pressure inlet

Equipment Conditions
Main power source to tester is turned off

NOTE

Some testers have dual secondary fuel filters while other testers have only one. Disregarding quantity differences, the maintenance instructions are the same for both except where noted. The following procedures are for testers with dual secondary fuel filters.

1 LH PANEL ASSEMBLY (1). Remove by turning three pawl fasteners (2) counterclockwise until they release.



NOTE

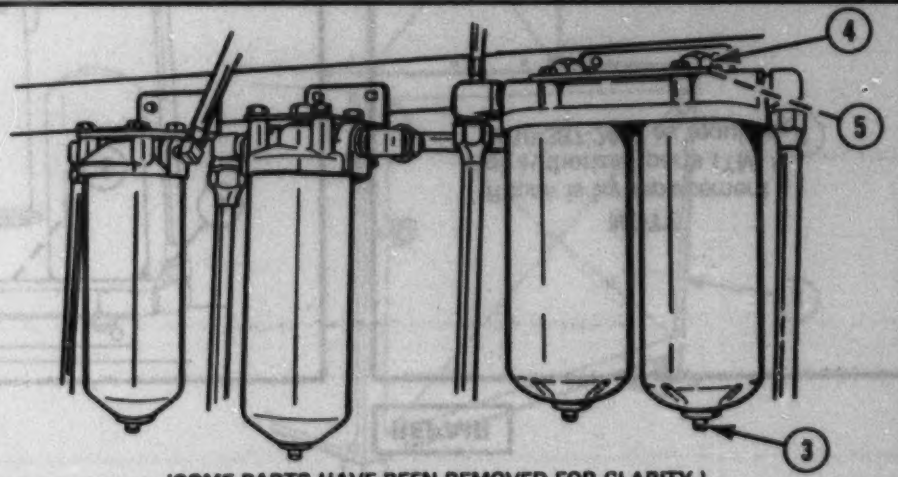
For testers with a single secondary fuel filter, omit step 2 as there is not a plug to remove. Pour out fuel after removing body assembly.

2 TWO PLUGS (3). Remove using a 7/16-in. open end wrench and drain fuel into an available minimum-size 2-qt (1.89-l) container.

NOTE

Hold body assemblies when loosening capscrews.

3 TWO CAPSCREWS (4) WITH TWO GASKETS (5). Loosen using a 1-in. open end wrench.



(SOME PARTS HAVE BEEN REMOVED FOR CLARITY.)

4-25. SECONDARY FUEL FILTER—MAINTENANCE INSTRUCTIONS (cont)

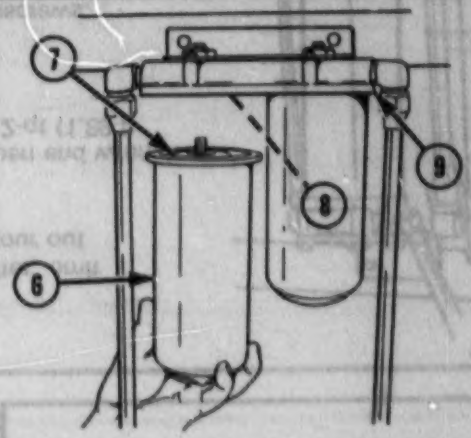
DISASSEMBLY (cont)

4 TWO BODY ASSEMBLIES (6).

a. Turn to remove.

b. Lift out two fluid filter elements (7).

5 TWO GASKETS (8). Remove from cap (9).



REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

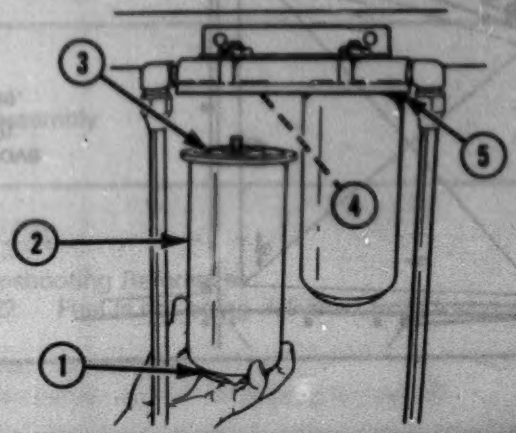
REASSEMBLY

NOTE
For testers with a single secondary fuel filter, omit step 1.

1 TWO PLUGS (1). Install in two body assemblies (2).

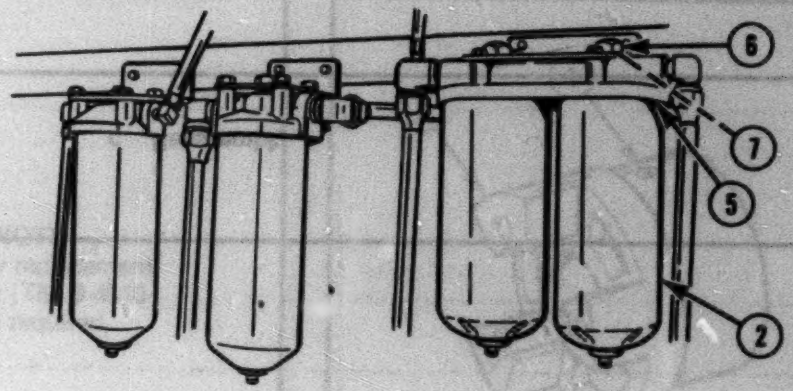
2 TWO FLUID FILTER ELEMENTS (3). Place in two body assemblies (2).

3 TWO GASKETS (4). Install in cap (5).



4 TWO BODY ASSEMBLIES (2). Position under cap (5).

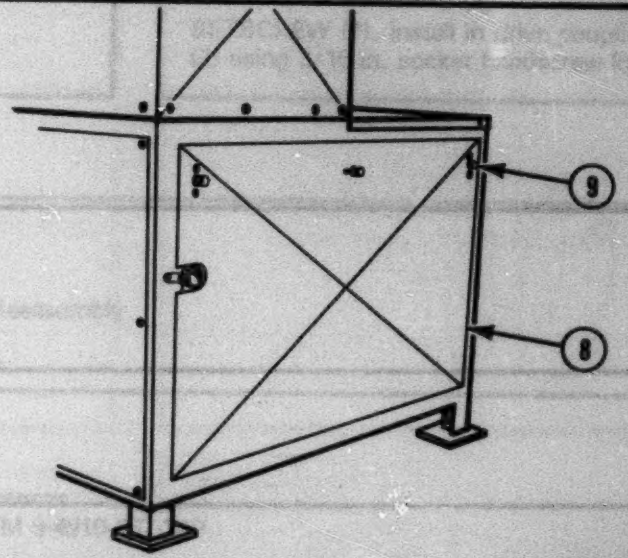
5 TWO CAPSCREWS (6) WITH TWO GASKETS (7). Tighten using a 1-in. open end wrench.



6 LH PANEL ASSEMBLY (8).

a. Position on tester.

b. Tighten three pawl fasteners (9).



4-26. ACCESSORIES SET – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-27. DRIVE COUPLING – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

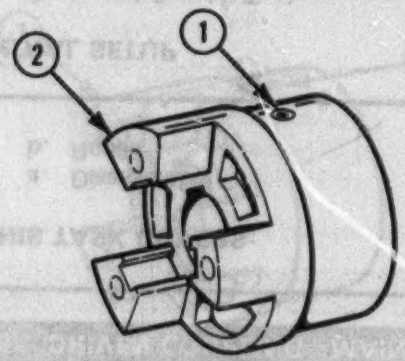
a. Disassembly
b. Repair
c. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

DISASSEMBLY

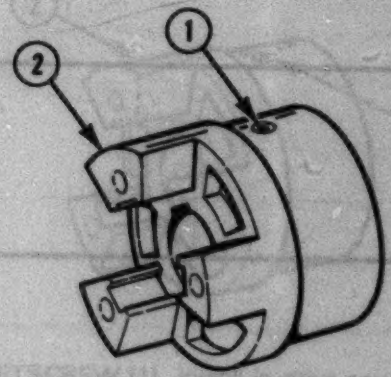


SETSCREW (1). Remove from drive coupling (2) using 3/16-in. socket headscrew key.

REPAIR

NOTE
Repair is by replacement of setscrew (TM 9-4910-387-24P) as required.

REASSEMBLY



SETSCREW (1). Install in drive coupling (2) using 3/16-in. socket headscrew key.

4-28. ADAPTER RING ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Repair
c. Reassembly

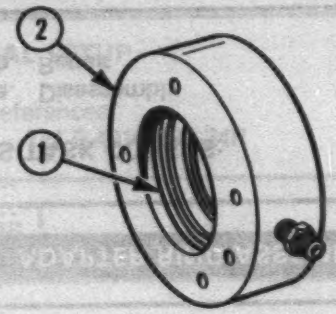
INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

4-28. ADAPTER RING ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

DISASSEMBLY

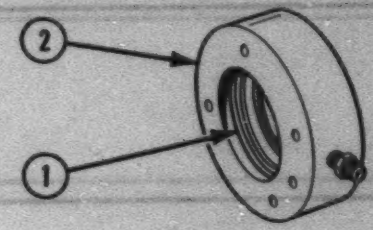


SEAL (1). Push out from adapter ring (2) using adequate pressure.

REPAIR

NOTE
Repair is by replacement of seal (TM 9-4910-387-24P) as required.

REASSEMBLY



NOTE
Seal must be installed by placing encased side in first.

SEAL (1). Push in adapter ring (2) using adequate pressure.

4-29. DRIVEN COUPLING—MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

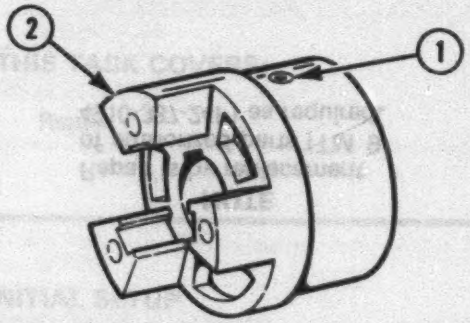
a. Disassembly
b. Repair
c. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

DISASSEMBLY

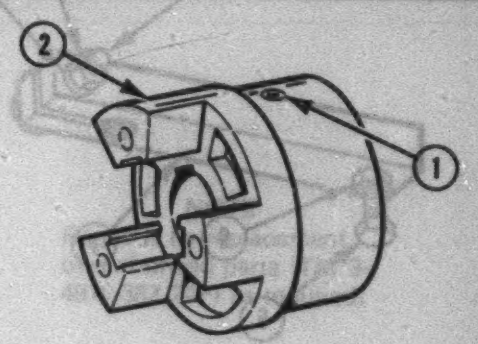


SETSCREW (1). Remove from drive coupling (2) using 3/16-in. socket headscrew key.

REPAIR

NOTE
Repair is by replacement of setscrew (TM 9-4910-387-24P) as required.

REASSEMBLY



SETSCREW (1). Install in drive coupling (2) using 3/16-in. socket headscrew key.

4-30. LEVER ASSEMBLY—MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Disassembly
b. Repair
c. Reassembly

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

4-30. LEVER ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

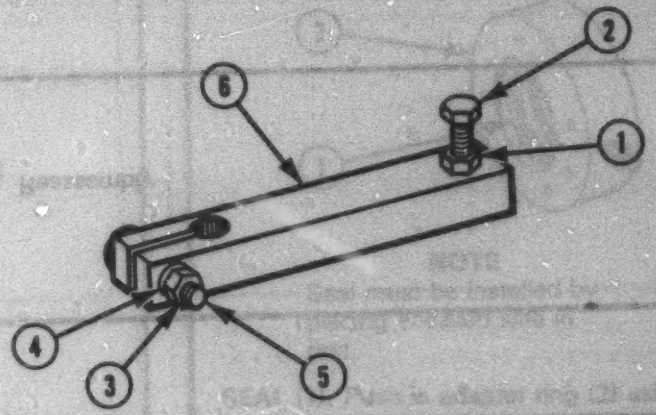
DISASSEMBLY

1 NUT (1). Loosen with 7/16-in. open end wrench.

2 SCREW (2) AND NUT (1). Remove.

3 NUT (3), WASHER (4), AND SCREW (5). Remove using two 7/16-in. open end wrenches.

4 LEVER (6). Remove.



REPAIR

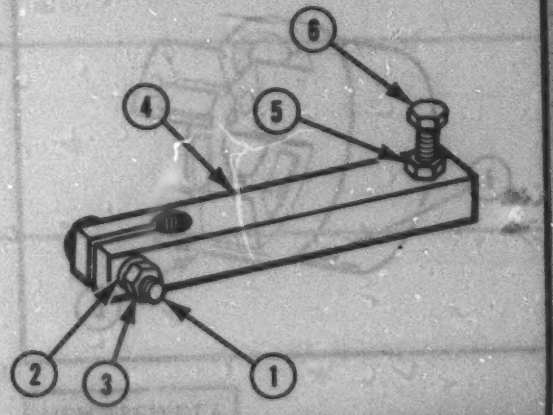
NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

REASSEMBLY

1 SCREW (1), WASHER (2), AND NUT (3). Install on lever (4) using two 7/16-in. open end wrenches.

2 NUT (5) AND SCREW (6). Install.

3 NUT (5). Tighten using 7/16-in. open end wrench.



4-31. FUEL INJECTION TEST SET – MAINTENANCE INSTRUCTIONS

REPAIR

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-32. CONNECTOR SET – MAINTENANCE INSTRUCTIONS

REPAIR

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-33. AMERICAN BOSCH ADAPTER KIT APE-6BB – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-34. AMERICAN BOSCH ADAPTER KIT PSB-6A AND PSB-6 – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-35. AMERICAN BOSCH ADAPTER KIT PSB-12BT – MAINTENANCE INSTRUCTIONS

REPAIR

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-36. SIMMONDS ADAPTER KIT SU – MAINTENANCE INSTRUCTIONS

REPAIR

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-37. INTERNATIONAL HARVESTER ADAPTER KIT 3200 – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-38. AMERICAN BOSCH ADAPTER KIT PSJ-6A – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

REPAIR

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-39. CATERPILLAR ADAPTER KIT – MAINTENANCE INSTRUCTIONS

REPAIR

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-40. ROOSA MASTER ADAPTER KIT – MAINTENANCE INSTRUCTIONS

REPAIR

THIS TASK COVERS:

Repair

INITIAL SETUP

References
TM 9-4910-387-24P

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

4-41 CUMMINS ADAPTER KIT – MAINTENANCE INSTRUCTIONS

REPAIR

THIS TASK COVERS:

Repair

NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

INITIAL SETUP

References
TM 9-4910-387-24P

4-42 AUXILIARY PANEL ASSEMBLY – MAINTENANCE INSTRUCTIONS

THIS TASK COVERS:

a. Removal
b. Disassembly
c. Repair
d. Reassembly
e. Installation

INITIAL SETUP

Tools and Special Tools
General mechanic's automotive tool kit (5180-00-177-7033)

References
TM 9-4910-387-24P

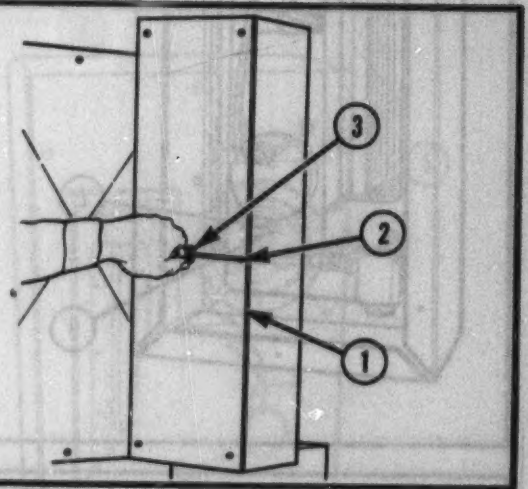
REMOVAL

NOTE
The auxiliary panel assembly is only used when testing the Cummins pump. Removal and installation procedures are necessary only when replacing the entire auxiliary panel assembly. Some auxiliary panel assemblies will not have a back panel or attaching screws.

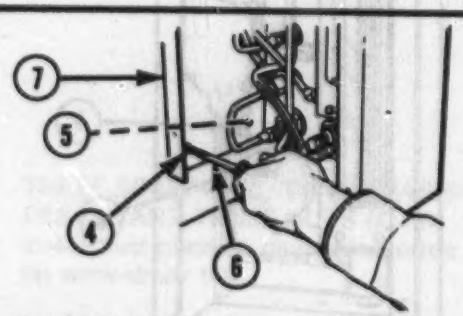
1 BACK PANEL (1).

a. Remove six screws (2) using cross tip screwdriver (3).

b. Remove.



DISASSEMBLY



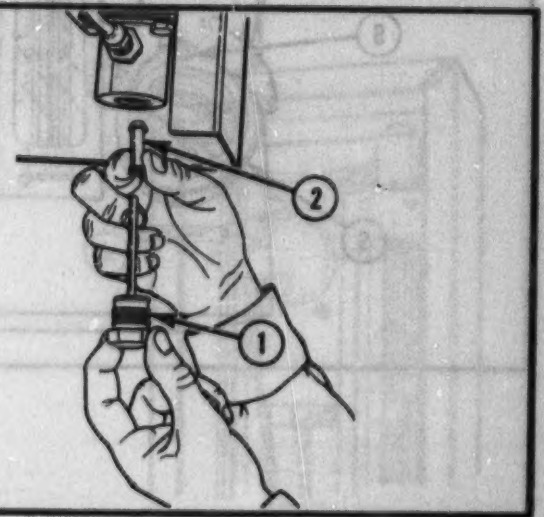
2 FIVE SCREWS (4) AND FIVE WASHERS (5). Remove using cross tip screwdriver (6).

3 AUXILIARY PANEL ASSEMBLY (7). Remove.

NOTE
Remove plug slowly in order to grasp float.

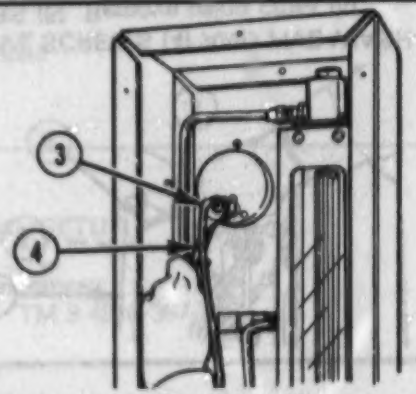
1 PLUG (1). Remove with 1-in. open end wrench.

2 FLOAT (2). Remove.



4-42. AUXILIARY PANEL ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

DISASSEMBLY (cont)

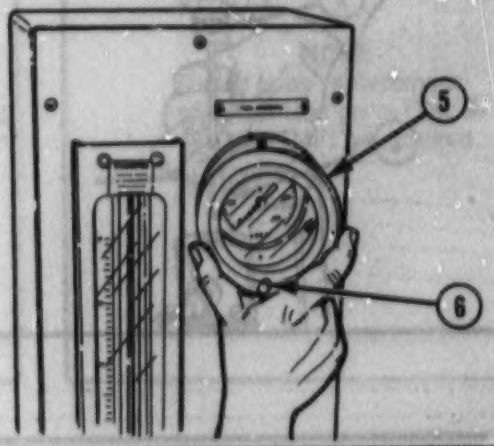


3 TUBING ASSEMBLY (3). Remove using 7/16-in. open end wrench (4).

4 GAGE GLASS (5).

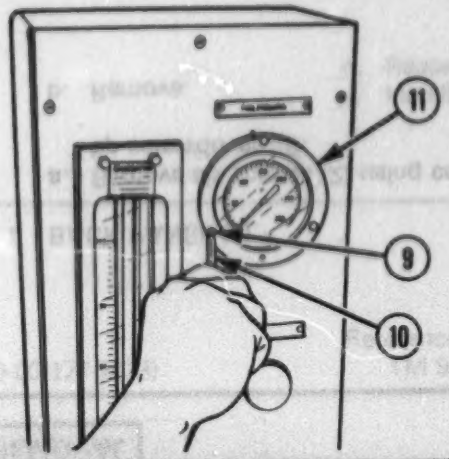
a. Loosen screw (6).

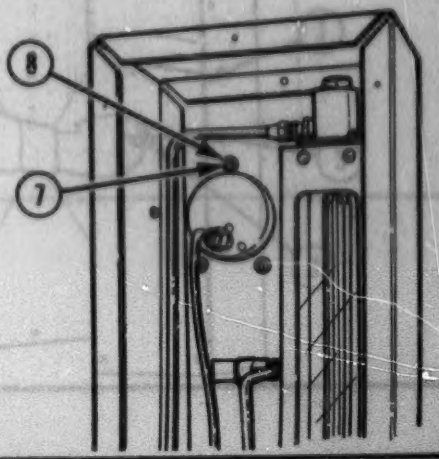
b. Remove.



5 THREE NUTS (7), THREE WASHERS (8), AND THREE SCREWS (9). Remove with cross tip screwdriver (10).

6 FUEL PRESSURE GAGE (11). Remove.



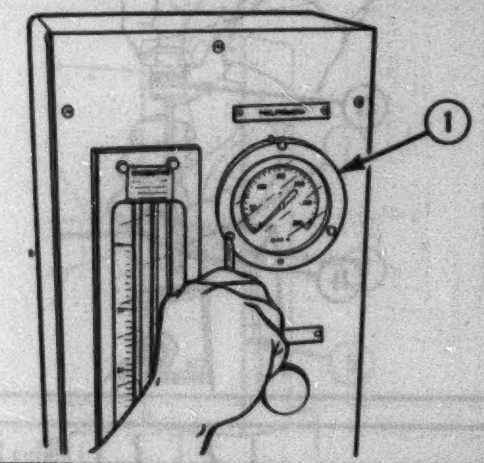


REPAIR

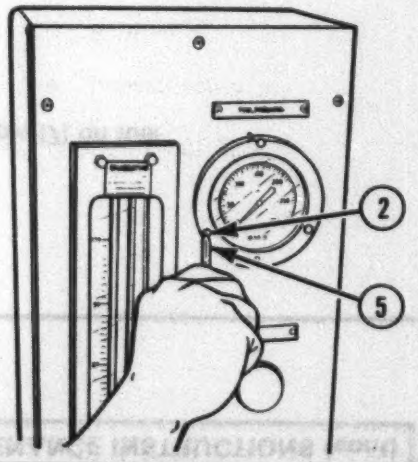
NOTE
Repair is by replacement of authorized parts (TM 9-4910-387-24P) as required.

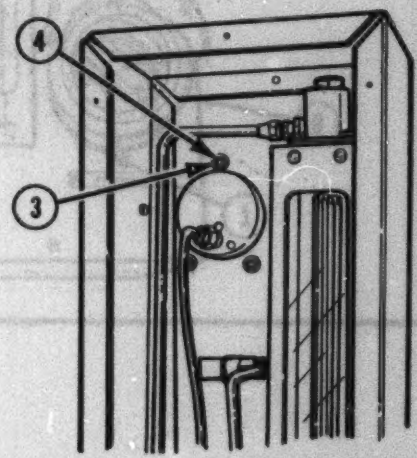
REASSEMBLY

1 FUEL PRESSURE GAGE (1). Position on front panel.



2 THREE SCREWS (2), THREE WASHERS (3), AND THREE NUTS (4). Install in fuel pressure gage using cross tip screwdriver (5).



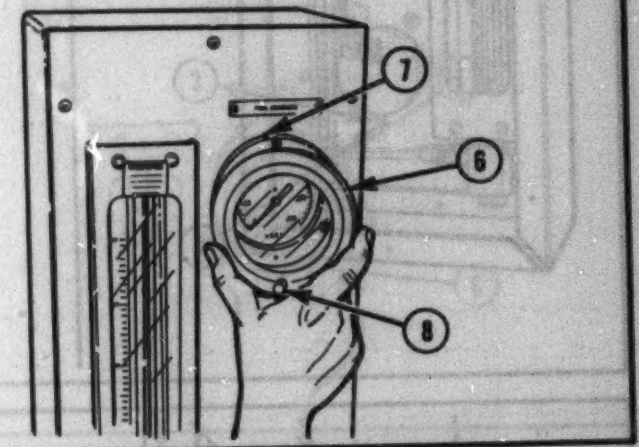


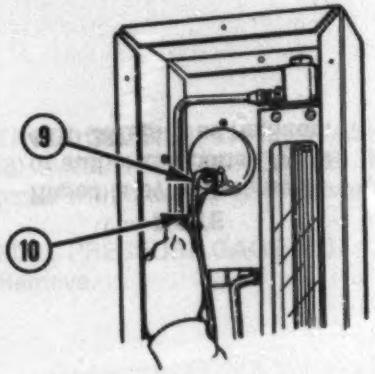
4-42. AUXILIARY PANEL ASSEMBLY—MAINTENANCE INSTRUCTIONS (cont)

REASSEMBLY (cont)

3 GAGE GLASS (6). Position so hole alines with pin (7) on fuel pressure gage.

4 SCREW (8). Tighten.

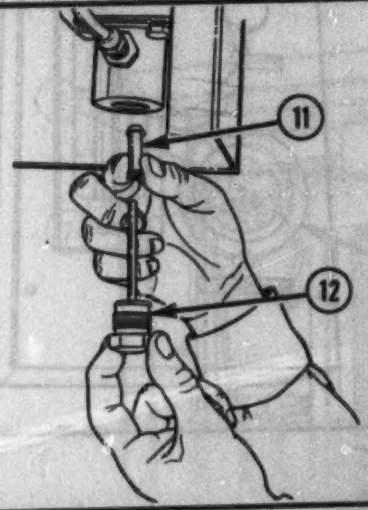




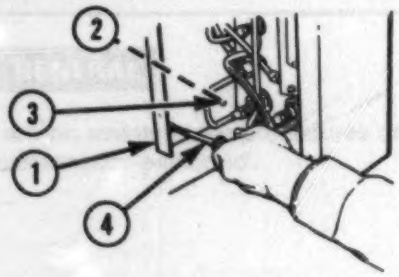
5 TUBING ASSEMBLY (9). Install using 7/16-in. open end wrench (10).

NOTE
Ensure cone end of float is installed first.

6 FLOAT (11) AND PLUG (12). Install using 1-in. open end wrench.



INSTALLATION

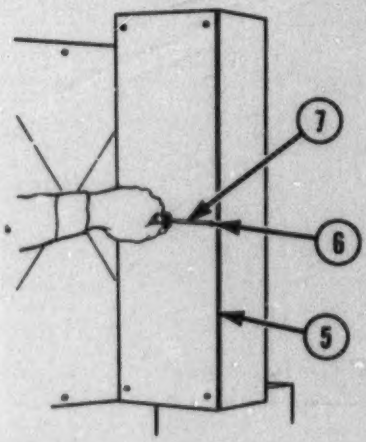


1 AUXILIARY PANEL ASSEMBLY (1). Aline with holes on upper LH panel of tester.

2 FIVE WASHERS (2) AND FIVE SCREWS (3). Install using cross tip screwdriver (4).

3 BACK PANEL (5). Position on auxiliary panel assembly.

4 SIX SCREWS (6). Install using cross tip screwdriver (7).



CHAPTER 5
DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

5-1. GENERAL

There are no maintenance procedures on the tester for direct support maintenance personnel.

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*OP - Operator
ORG - Organizational

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

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PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO
4-40	4-13		
4-90	4-30		

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

IN THE ART FOR STEP 1, CALLOUT 2 SHOULD BE CHANGED TO CALLOUT 3.

ON STEP 3, "WASHER" SHOULD BE CHANGED TO "LOCK WASHER".

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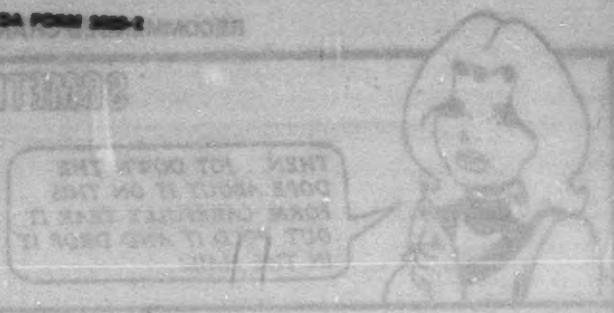

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TEAR ALONG PERFORATED LINE

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

TEMPERATURE

$5/9\ (^{0}F - 32) = {}^{0}C$
212^{0} Fahrenheit is equivalent to 100^{0} Celsius
90^{0} Fahrenheit is equivalent to 32.2^{0} Celsius
32^{0} Fahrenheit is equivalent to 0^{0} Celsius
$9/5\ C^{0} + 32 = F^{0}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

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